

INTRODUCTION: THE TIGHTENING NOOSE

The pace of technology has rendered our systems vulnerable... We [the Air Force] have been able to keep up with the capability to launch on warning, but to go beyond that takes quite a bit of investment. (General Herres, Our Nation's Nuclear Warning System, infra, at 72.)

In the 1950s, the flight time of Soviet nuclear bombers to the United States was a matter of hours, and Eisenhower worried that military necessity might force him to order a nuclear strike before Congress could be consulted. In the 1960s, the advent of inter-continental ballistic missiles (ICBMs) reduced nuclear flight times to thirty minutes, and the military worried that necessity might force them to order a nuclear strike before the President could be consulted. In the 1970s, deployment of nuclear attack submarines reduced flight times to fifteen or fewer minutes for the heartlands, and to eight or fewer minutes for the National Command Authorities (NCA) in Washington. In 1981, General Allen graphically described the situation:

He is there. That is a [Soviet] *Yankee* submarine sitting out in the ocean and his missiles are pointed right at this city and those missiles will be here within [deleted minutes] from the time they are launched. We will detect them within a [deleted minute] after they break water. We will process the data as well as we are able. We will provide that data through the communications channels to the National Command Authority to make what use they can make of it.¹

In 1982, Secretary of Defense Harold Brown advised: "I think the idea of depending on launch on warning is a bad idea ... We ought not to let the computers make the decision as to when we go to war."² Under Secretary of Defense for Policy Fred Ikle has summed up the problem:

If any witness should come here and tell you that a totally reliable and safe launch on warning posture can be designed and implemented, that man is a fool.
The crux of the matter is that the more important it becomes to launch on warning, the more dangerous it will be. The tightening noose around our neck is the requirement for speed.³

ws. SDI
(ws. Allen?)

It is sobering to reflect that the militarization of space promised by even a vestigial "Star Wars"

¹ House Armed Services Committee (HASC), DOD Appropriations FY 1982, at 248.

² *New York Times*, 1982, May 27, p.31; A War of Computers - For Nuclear Starters.

³ *New York Times*, July 18, 1982, reciting Ikle's 1979 congressional testimony.

XRL
technology will reduce kick-off response times to mere seconds. Nuclear war will begin with a computer-governed satellite-on-satellite replay of the shoot-out at the OK corral.⁴

THE UNITED STATES UNDULY RELIED UPON LOWC

As you know, the beauty of the ICBM force is that you can have 99 percent of them ready to go, bolt out of the blue, and get them off rapidly... [W]e are not more survivable unless we take the proper action, as was said, prompt execution in the event of an attack. (General Vessey, Senate Armed Services Committee, DOD Appropriations FY 1984.)

LUA, LOT...
[I]t can be stated unequivocally that the present system, despite its current limitations, supports our national policy of deterrence and does not force us to simply absorb a nuclear attack... or resort to a preemptive strike. (Donald Latham, Our Nation's Nuclear Warning System, infra, at 131.) ✓

Since the U.S. C³ I [Command, Control, Communications, and Intelligence] system cannot ride out an attack with high confidence, we depend heavily for our retaliatory capability on strategies that utilize the U.S. C³ I system while it is still substantially intact. Three strategies that exploit an intact C³ I network are first-strike, preemption, and launch-on-warning. Since the United States has not been attracted to nuclear strategies based on first-strike and preemption, then, by default, the U.S. strategic posture would be geared for launch-on-warning. A launch-on-warning response would be large in scale regardless of the size and pattern of Soviet attack... I restate the fact that the United States relies heavily on launch on warning for positive control, for force coordination and for retaliation. (Bruce Blair, Ibid., pp.34,41.)

To launch on warning is to order the retaliatory launch of nuclear missiles in response to sensor warning of missile attack. The author includes sensor detection not only of missiles in flight but also of nuclear detonations. Only after detonations are unequivocally confirmed (i.e. known),

⁴ There is little merit to the government's contention that the "Star Wars" defense will be safely decoupled from offense. The command and control system now being developed joins sword and shield, as reported in *Aviation Week and Space Technology*, Feb 15, 1988:

Strategic defense weapons would be linked with strategic offense forces, warning, and intelligence agencies through the SDI [Strategic Defense Initiative = "Star Wars"] operational structure. It would allow military commanders to select various strategic defense options to support offensive force actions during a crisis.

Also, the basic response to the accidental triggering of Star Wars will be up to the Soviets, whose vital satellites should be suddenly jammed or killed. See also fn.149 below.

which requires geiger-counter bearing witnesses of the devastation, and evaluation conferences, does his period of warning end, and his period of confirmed attack begin.⁵ Published and practiced definitions vary on this critical point. In practice, an attack warning becomes "confirmed" merely by the endorsement of a military commander, which authorizes instant all-out nuclear retaliation.

The definitive *Report of the President's Commission on Strategic Forces*, which was chaired by Lt.-General Scowcroft (April 1983), included in its doomsday dictionary:

Launch on Warning - This phrase is now usually, but not universally, used to mean launch of missiles after one side received electrical signals from radars, infra-red satellites, or other sensors that enemy missiles are on the way, but before there have been nuclear detonations on its territory. "Launch under attack" is sometimes used interchangeably with "launch on warning" and sometimes used to designate a launch after more confirmation has been received, such as indications that detonations have been received.

Launch Under Attack - See "Launch on Warning."

According to the establishment strategist and IBM command and control technologist Dr. Richard Garwin, in an article widely regarded as seminal on the latest LOWCs:

Air Force definitions are approximately as follows:

Launch on warning: a launch in response to a sensor indication of an attack on the continental United States (CONUS).

Launch under attack: a launch after high-confidence determination that CONUS is under massive attack.⁶

does it? This means that the Air Force interprets approximately coincidental warnings from one of two types of sensor (radar and infra-red) as giving rise to the attack warning period, but in-flight warnings of attacking missiles registered by both types of sensor by definition are sufficient to require declaration of a confirmed attack condition, and so to a launch under attack rather than a launch on warning situation. This verbal ploy permits nuclear "retaliation" before any attacking missile has detonated, let alone before unequivocal confirmation of a detonation.

⁵ Computer output alone is never unequivocal. As Judge Van Graafeiland recognized: "As one of the many who have received computerized bills and dunning letters for accounts long since paid, I am not prepared to accept the product of a computer as the equivalent of the Holy Writ." *Perma Research & Development v. Singer*, 542 F.2d 111, 121 (1976).

⁶ *Launch Under Attack To Redress Minuteman Vulnerability*, *International Security*, Winter 1979, p.117.

Jo

The phrase "launch on warning" became taboo after false alerts in 1979 and 1980, described at p.55 below. Thereafter, launch *on warning* was inexactly bracketed in Launch *Under Attack* or, more rarely, Launch Under Confirmed Attack (LUCA). The specious logic is explained in an Air Force sponsored report: "the precursors [warning signals] themselves have a clear and unambiguous relationship to the threat ... so much so as to be tautologically equivalent to an attack in progress."⁷ This sophistry permits the military to sidestep higher authority under the guise of returning fire. As Secretary Orr testified in this context: "I don't think anybody ever gave the command at Pearl Harbor that we were at war."⁸ By 1983, the euphemism "Launch Under Attack" had itself accrued the launch on warning stigma. Commander In Chief of the Strategic Air Command (CINCSAC) General Davis explained to the Senate Armed Services Committee (SASC) that "prompt response" was most apt:

Gen. Davis: Launch under attack, there are many interpretations of that, but one interpretation of that is, of course, nuclear weapons are going off in our country, and certainly a reason to retaliate, which is launch under attack. So I would say a prompt response to the threat without detailing what this Nation's mode of retaliation is certainly warranted without spelling out and I do not think any purpose is served spelling out exactly how it would be done.

Sen. Nunn: Well, does that mean you have modified your position and that launch under attack is now acceptable?

Gen. Davis: Let me characterize it as a prompt response.⁹

Ha

Any set of procedures that makes it possible to launch on warning is termed a Launch On Warning Capability (LOWC, pronounced *louse*). This set-theoretic concept provides by far the best logical foundation for analysis of launch on warning. The author avoids oversimplification in favor of rigor, as it is necessary to foreclose loopholes and resolve willful ambiguities. Accordingly, he sets forth the following precise definition, which could of course be amended to suit legislative or legal purposes:

An enabled or operated *Launch On Warning Capability* is defined

7 *Strategic Warning And General War*, RAND N-1180-1-AF (1979), at 25-6; emphasis added. See also fn.43 below.

8 HASC, DOD Appropriations FY 1982, p.254.

9 *MX Missile Basing System and Related Issues*, Apr 1983, at 417.

to be any set of procedures whereby the retaliatory launch of nonrecoverable nuclear missiles may be committed in response to a (supposedly) valid tactical (in-flight) warning of attacking Soviet nuclear missiles and prior to the unequivocal confirmation of a detonation of a Soviet nuclear missile to the direct injury of the United States or its allies.

In the foregoing:

(a) a launch is deemed "committed" either when orders to execute the launch are issued or when orders are issued authorizing or automating launch execution contingent upon imminent electronic communications failure(s);

(b) "unequivocal confirmation of a detonation" precludes full reliance upon computerized sensor reports of nuclear detonations, or upon cessation of such sensor reports, and requires multiple witness confirmation and sufficient assessment of Soviet culpability and intent; ¹⁰

(c) "prior detonation" includes any previous nuclear use.

This identifies those situations in which the warning is sensor-based and of an attack which would comprise a nuclear first-strike or preemption, if it were real. Thus, a prohibition against the defined LOWCs would without prejudice leave open the possibility that the President may order whatever use of nuclear weapons he deems fit and proper in nonanticipatory response to injury already caused by nuclear detonations properly attributed to the Soviets.

The author argues below that the defined LOWCs are prohibited under the Constitution, and shows that the effective LOWC now operated is accordingly unconstitutional. Missiles protected under a LOWC are said to be on launch on warning, or in launch on warning posture, and they are said to hold their targets at risk even in the event of a surprise attack on them. Today, the Air Force's silo-based Minuteman and MX missiles are on launch on warning, and the proposed rail-garrison MX missile is also to be routinely on launch on warning. *but not, automated*

The Pentagon swears that only the President can launch on warning, and that he might, but the bottom line is that only Artificial Intelligence¹¹ (AI) can launch on warning, and it might.

or those who simulate computers (programed): quasi-automation.

¹⁰ The author contends that neither of these requirements can be assured within the flight time of attacking missiles.

¹¹ Coined by John McCarthy at Dartmouth in the 1950s by John McCarthy, the phrase "Artificial Intelligence" is longhand for computers. Today's war machines *think*. For centuries, classical logicians have pragmatically defined *thought* as the processing of raw perceptions, comprising the trinity of: categorization of perceptions (Apprehension); comparison of categories of perceptions (Judgment); and the drawing of inferences from connected comparisons (Reason).

Only computerized sensors can figure the flight of missiles; only computers can discriminate the parameters of an attack; and only computers can schedule this and other judgments quickly enough to advise and execute a responsive launch of sitting-duck Minuteman and MX missiles prior to the predefined "use them or lose them" deadline. Notwithstanding uncertainty, crude indices and hazarded thresholds guarantee that AI will rapidly reach conclusions. Notwithstanding people in the loop, AI's conclusions hold final sway. Computers validate computers. IBM's military command, control, and communications boss Albert Babbitt explains why:

The commander himself ordinarily never interacts directly with the command and control system; rather, the staff uses the system... Because of the lack of career path for command and control and the rotation of people between field and command center assignments, training can be a significant constraint, particularly in such highly technical areas as the attack warning and attack assessment system. Here the interpretation of sensor outputs depends on a thorough knowledge of the characteristics of the sensor and the algorithms used in the data processing, as well as of enemy weapons systems. The need for extensive technical knowledge can be alleviated through the use of knowledge-based systems, that is, computers that are "experts" and to which the

AI signifies the performance of these definite functions by computers. AI is also a buzz-term that salesmen have applied to virtually all 1980's software, but which to data processing professionals especially connotes software built from large lists of axiomatic "IF x THEN y" rules of inference. (Of course, all programs have some such rules, and, viewed at the machine level, are logically indistinguishable.) The idiom artificial *intelligence* is curiously convoluted, being applied more often where the coded rules are rough and heuristic (i.e. guesses) rather than precise and analytic (i.e. scientific). The silly innuendo is that AI codifies intuitive expertise. Contrariwise, most AI techniques amount to little more than brute trial-and-error facilitated by rule-of-thumb short-cuts. An analogy is jig-saw reconstruction, which proceeds by first separating pieces with corners and edges, and then crudely trying to find adjacent pairs by exhaustive color and shape matching trials. This analogy should be extended by adding distortion to all pieces of the jig-saw, so that no fit is perfect, and by repainting some, removing other, and adding a few irrelevant pieces. A most likely, or least unlikely, fit is sought. *Neural nets* are computers programmed with an algorithm for tailoring their rules of thumb, based on statistical inference from a large number of sample observations for which the correct solution is known. (See *Defense Computing*, Jan 1988.) In effect, neural nets induce recurrent patterns from input observations. They are limited in the patterns that they recognize, and are stumped by change. Their programmed rules of thumb are not more profound, although they are more complicated, raw "IF... THEN" constructs. Neural nets derive their conditional branchings from underlying rules of statistical inference, and cannot extrapolate beyond the fixations of their induction algorithm. Like regular AI applications, they must select an optimal hypotheses from a simple, predefined set. Thus, all AI applications are largely probabilistic, as exemplified by medical diagnosis and missile attack warning. In medical diagnosis, failure to use and heed a computer can be grounds for malpractice, yet software bugs have gruesome consequences. Likewise, missile attack warning deters, yet puts us all at risk.

novice staff member can refer questions.¹²

Basic launch on warning facts are laid out in *MX Missile Basing*, Office of Technology Assessment, 1981, in the chapter "Launch Under Attack," by Ashton Carter:

[T]o launch silo-based ... missiles *before* attacking Soviet [missiles]

¹² *Managing Nuclear Operations*, Brookings Institute (1987), pp.331-32. An Oct 29, 1986, posting from Ronald Wanttaja in the Massachusetts Institute of Technology's "Arms-Digest" electronic bulletin board recounts his experiences of this function (italics added):

THE MILITARY AND AUTOMATIC HUMANS

After graduating about ten years ago, I entered the Air Force as a Satellite Systems Engineer. I was assigned to a unit operating a particular NORAD [North American Aerospace Defense] satellite system... no names, mission statements, please. A buddy DID almost start World War III one night, though. My job was real-time and non-real-time analysis of mission data from the spacecraft; the end result of my analysis was to advice [sic] the NORAD Senior Director of the validity of the data. A lot of factors had to be incorporated in my analysis... in "N" seconds, I had to take into account which spacecraft had reported, its health and status, DEFCON [defense condition, or alert] level, and "numerous other mission critical elements." Nudge, nudge... Anyway, the job was highly dependent upon the experience of the analyst, as well as his intuition... we had to have a FEEL for what was right. Three years after I joined the squadron, the unit was reassigned from the Aerospace Defense Command to the Strategic Air Command. Now, SAC is the largest producer of automatic humans in the free world. In a word, SAC is checklist crazy... every task is broken down to the largest number of subtasks. *SAC treats its checklists as a way to eliminate the human element.* Training two people to work as a team is unnecessary... all they have to be able to do is call off the proper steps from the checklist. SAC uses simulators to allow its people to practice every step, and to handle every contingency. For instance, a missile launch officer has gone through the simulator dozens of times before he is placed in an actual control room... The crew must automatically perform its tasks, spending no time thinking about what the consequences are. The crew must not bring their emotions into play, nor even any additional knowledge they must have. Every action must be governed by a checklist step. You can see what our problem was... how [d]o you place "intuition" and "gut feel" onto a checklist? Our job could not be performed by an automaton; we had to call on experience and a deep understanding of system operation in order to provide our assessment. We argued, to no avail. We had to have a checklist. So we thought and thought, and broke the analysis task into as many subelements as we could. The last subelement was OPERATOR INTUITION. Did SAC complain? Nahhhhh... they never read the thing. Occasionally they'd show up for Operational Readiness Inspections. During the simulation, their checklist called for them to verify that we had our EVENT ASSESSMENT checklist open. Their checklist didn't actually call for them to actually read our checklists.

see lettering onto.

could destroy them ... is called launch under attack (LUA)... The United States now preserves the capability to LUA as a matter of stated doctrine... To guarantee the LUA capability against some contingencies it might be necessary to adopt unpalatable procedures regarding, for instance, delegation of launch authority. No matter how much money and ingenuity were devoted to designing safeguards for the U.S. capability to launch under attack... it would probably never be possible to eradicate a lingering fear that the Soviets might find a way to sidestep them. Finally, despite all safeguards, there would always remain the possibility of error, either that missiles were launched when there was no attack, or that they failed to launch when the attack was genuine... Insofar as technology is concerned... efforts to decrease the chance of one error could increase the chance of the other... Mistakenly initiating a "simulated" attack by, e.g., loading the wrong tape into a computer, would be an error of this type. It is obviously not possible to set and enforce a bound on the probability that such an error would occur.

Further, a LOWC drives the entire nuclear war plan by setting a global timeline, as Ashton Carter explains:

Guidance to the command system to plan and practice LUA can easily convey broader messages to planners. It suggests that riding out an attack and responding after careful deliberation is no longer the paramount principle of nuclear operations. It may suggest that it is acceptable to design other short time lines into operational planning, since "the decision is going to be made in a half hour anyway." LUA might even hint at preemption, since a resolve to launch on the basis of tactical warning might seem close to launching on lesser provocation or on strategic (before enemy launch) warning. It is these darker undertones of LUA, as it works its way down into the command system over a period of years, that policymakers should fear as much as they fear type II error [false tactical warning]. (*Managing Nuclear Operations, supra*, at 628.)

Kewson...
(but this is real!)

In 1985 testimony before the Senate Armed Services Committee (SASC), Fred Ikle conceded the risk of a false warning, and cautioned that the continued capability to respond to "a massive surprise attack" meant that "computer assessments govern a decision whether to fire these atomic weapons that could destroy the human species."¹³

Concerns that the Strategic Air Command (SAC) could be knocked out in a surprise strike date back to the end of World War II, and the creation of the Rand Corporation.¹⁴ Rand

¹³ SASC, Feb 21, 1985; Fred Ikle's prepared statement. Ikle was arguing that a Star Wars defense would reduce the risk of an accidental launch on warning. *BUT SDI would be automated!*

¹⁴ Rand's father-figure, General "Hap" Arnold, on the day World War II ended, forewarned that

analyst Wohlstetter reignited this fear from 1952-55 with reports that showed how easily SAC bomber bases could be knocked out in a surprise attack.¹⁵ He eventually won his point, aided by a tornado's destruction of a SAC base in Texas, and shockingly confirmed by an ad hoc exercise which caught *all* SAC's nuclear bombers napping.¹⁶ In due course, this led to Eisenhower's ordering SAC bombers into a perpetual alert, and to the blue-ribbon *Gaither Committee Report* (Nov 7, 1957), and *Rockefeller Panel Report* (Jan 6, 1958). There was even a U.S.-Soviet conference on surprise attack in the late 1950s (Wohlstetter was the most prominent U.S. representative), which got nowhere.

Since the early 1950s, CINCSAC General LeMay had regularly informed his troops there was a "gnome in the basement" of the Kremlin, who performed force correlation analyses every day. One fine day the gnome would conclude that the time was ripe to launch his nuclear bombers against the United States. Phobic preparation against a nuclear "bolt-out-of-the-blue" is a cult

World War III would begin with a surprise rocket attack on America, against which it should be able to strike back with "three-thousand-miles-per-hour robot atom bombs launched from space ships." Like so many other Pentagon nuclear policy makers, Fred Ikle is an ex-consultant of the Rand Corporation, a think-tank founded by the Air Force after World War II to keep scientists in their service. Rand has played a leading role in devising and packaging the morale-boosting readiness that zealously guards against a nuclear Pearl Harbor. See the partially declassified report *Launch Under Attack (LUA): An Assessment of Minuteman Targeting Options*, Rand R-1514-AF, Aug. 1979 for a glimpse into the analyses that directly led to the early 1980s launch on warning policies. (Rand advised that retaliatory commitment within the flight-time of a submarine launched ballistic missile to Washington would be "probably unacceptable," but all other timelines were implicitly approved.) Congressman Mendel Rivers aptly described Rand's mesmeric pace of technology mission with the words: "Nobody but nobody can take credit for or stop the state of the art. It is something that will move, and it just pours out of the head of people and it is unconscious and it will go ahead and those who get on the saddle can, and those who can't leave." RAND stands for "Research AND Development," and was born as Army Air Force Contract MX-791 on March 1, 1946. Rand's charter is brief: "Project RAND is a continuing program of scientific study and research on the broad subject of air warfare with the object of recommending to the Air Force preferred methods, techniques and instrumentalities for this purpose." True to its forward-thinking mission, Rand's first report (May 1946) was called *Preliminary Design Of An Experimental World-Circling Spaceship*, and in 1947 Rand began to work for the Air Force on ballistic missile development. This was Project MX-774; the acronym "MX" (Missile eXperimental) is not recent. See, e.g., *The Wizards of Armageddon*, by Kaplan (1983), and *Counsels of War*, Oxford University Press (1987), for accounts of Rand's profound domination of American nuclear strategy.

¹⁵ See especially *Selection And Use Of Strategic Air Bases*, Rand R-266, Apr 1954.

¹⁶ CINCSAC LeMay was unperturbed by the demonstration, emphatically stating that he could and would preempt if ever the Soviets prepared to attack. See fn.205 below.

passed on from CINCSAC to CINCSAC, as General Dougherty recalled in the opening sentences of *The Psychological Climate Of Nuclear Command*, in *Managing Nuclear Operations*, *supra*, p.407: —

When I assumed command of the Strategic Air Command on August 1, 1974, one of my most distinguished and admired seniors, General Curtis E. LeMay, pulled me aside during the reception that followed my swearing-in and asked me if I was fully aware of the implications of my command responsibilities. I assured him that I was aware of my role and authority and sobered by the scope and potential of SAC's extensive nuclear-equipped weapons systems. Then General LeMay asked me point blank, "Whom do you remember from Pearl Harbor?" The question was so surprising that I did not give a quick, direct response. When General LeMay pressed me to "answer the question," I gave the only reply that came immediately to mind: "Sir," I said, "I remember General Short and Admiral Kimmel." [They] were relieved of their commands for dereliction, notwithstanding the contributory failures of others. "You are exactly right," he said. "The responsible military commanders are the ones remembered in disasters and defeats."... [T]his "nuclear bolt-out-of-the-blue" crisis scenario... is not inconceivable... it is the one most discussed and most exercised.

It is in fact the most conceivable scenario to many controlling minds. Consider the opinion of Lawrence Livermore Laboratory Director Lowell Wood:

"There's one thing that keeps jumping out at you again and again," Lowell said. "The Soviets won't have to be pushed very hard to pre-empt." In other words, if they felt an enemy might be preparing to use nuclear arms, they would be first to launch an attack. "They're not postured to do anything else," Lowell continued. "And they don't have to be pushed very hard to do it. They are set up - and I can't go into the grubby details - but they will not pre-empt in a hair-trigger fashion. They will make up their minds on time scales of hours or a day and go ahead and do it. It will be done in a very methodical, cold-blooded, brutal, paranoid fashion. They'll just pre-empt. And they will pre-empt whenever they do the geopolitical calculus and decide if its better to go this way than that. They'll just go ahead and do it - kill 100 or 200 million people." But that's not new, I said. According to such authors as Joseph D. Douglass, Jr. and Amoretta M. Hoeber, pre-emption had long been talked about as a Soviet military strategy. "No," he said, "it hasn't been their strategy because they haven't had the means to implement it until about a half dozen years ago. It's only since they've developed heavy ICBM's, since they've developed a lot of missile-firing subs. These things keep jumping out at you. Someday - maybe out of the clear, blue sky, because that's the way they're postured, that's the way they're wired, BAM! It will be all over. It's chilling. It's hard to get out of your mind. This is the only way their system works for strategic command, control, and communications. You toy at it month after month, year after year. What other interpretation could you give to

the fact that they have this capability and no other capability? They send out their equivalent to our Emergency Action Messages. But it isn't: 'Quick quick. Go go.' It's: 'At such and such a time and at such and such a date, you'll do so and so.' It's as methodical as a guillotine blade descending."¹⁷

Ikle warned the Senate of the risk posed by launch on warning mindful that the United States publicly denies having a launch on warning policy. Only the capability is admitted. Official denials of a launch on warning policy are as vehement as they are ambiguous. For example, Donald Latham, the Department of Defense's command and control czar, insisted that "on a policy basis, our policy is not one of launch on warning, absolutely not. We do not have that sort of a policy for deterrence. It is not the policy." However, when Representative Brooks asked "What *is* the policy?" Latham replied: "Our policy is to have a strong deterrent, and our capability to launch quickly is there... the President has the option to do just about anything he wants, including [deleted]."¹⁸ In fact: the U.S. military's master nuclear war program, the Single Integrated Operational Plan (SIOP, pronounced *sigh-op*), contains special Launch On Warning (LOW) options; nuclear missiles are held on day-to-day hair-trigger alert aimed at targets painstakingly patterned particularly for launch on warning; and launch on warning procedures solemnly decide, a couple of times each week, that the United States is not under nuclear attack.

All this is public knowledge. For example, a presentation of the SIOP to the Senate by a multi-service panel of four top defense officers listed "LAUNCH ON UNEQUIVOCAL WARNING" and "LAUNCH AFTER FIRST NUDET [NUclear DETonation] ON SOVEREIGN SOIL" separately, under the banner "OPTIONS TODAY."¹⁹ They explained how target

¹⁷ *Star Wars*, by William Broad, (1985) Simon and Schuster, pp.173-5.

¹⁸ *Our Nation's Nuclear Warning System: Will It Work If We Need It?*; Hearing before a subcommittee of the House Committee on Government Operations held Sep 26, 1985, p.109. Latham was trying to quell the furor caused earlier by the admission of General Herres, Commander-in-Chief of the North American Aerospace Defense (NORAD), quoted at p.1 above.

¹⁹ In his 1985 book, *The Button*, Daniel Ford reported:

"I don't know what an 'unequivocal warning' is, but if you have it you'd better launch" [said ex-CINCSAC General Holloway.]... The Reagan Administration has incorporated the strategy outlined by General Holloway in the latest United States war plan - SIOP-6, which went into effect October 1, 1983.

coordinates were preloaded in missile guidance computers for each option, stating:

[U]nder a 'bolt from the blue' attack. The ICBMs. Almost all of the ICBMs that are committed [deleted] could get off and do their job... All of the ICBMs that are designated [deleted] are on alert, and all of them could get off... What happens in deciding which missiles goes where? Well, each of our missiles now has a total of 100 plans present in memory, and with a guidance system we call Hybrid Explicit, those that are modified thus far with that will have 200 attack plans in memory. What this says is that when the Launch Control Centers get a go signal, they will know which option they are on, which withholds there are, and they will automatically send out after coordination with other LCC's the enable order and the execution order, and each missile within the field will know exactly what it is supposed to do... each of the missiles will know precisely what his target is, what his delay [time of launch] is, and just exactly how to launch in sequence. All of that is preplanned.²⁰

The SIOP is a growing decision tree. The 1950s trunk was a single all-out attack option. In the 1960s, this branched into half a dozen supposedly "limited" 1960s "flexible responses," which in the 1970s branched into several *relatively* smaller "NU-OPTS" (NUclear OPTions). The 1970s SIOPs demanded by Secretary of Defense Schlesinger were also (reportedly) the first to include explicit launch on warning options. Note that by 1977, there was provision for 100 independent SIOP options, and this was to be expanded. Recent additions have taken advantage of computerized missile accuracies, adding finer graduations especially between the lowest rungs of the nuclear escalation ladder, and greatly enhancing the preemption (decapitation) options. The proposed SDI defense would further divide SIOP options, making preemption seem less unattractive to military planners, by substantially increasing the "price of going second." (See fn.150 below.) Concerned establishment strategists, e.g. the Nunn-Warner group, trim the SIOP, but neglect to amputate the sick limb that now risks all, namely, the set of launch on warning options.

Admissions that a LOWC is preserved in the SIOP regularly recur, e.g.:

Gen. Ellis: [I]f we launch on warning. If that attack is made, then we have 98 percent of [ICBMs] on alert. In a day-to-day case or generated, it is the same... [I]f we launch on warning, we are going

However, present launch on warning procedures recognize the unavailability of "unequivocal" warning, and envisage launch in response to "high confidence" attack warning. See p.64 below.
²⁰ SASC, DOD Appropriations FY 78, pt.10 p.6850-1.

to get in excess of 90 percent of that force off. It is an impressive capability... So he [the President] has that option. He has always had that option. He should continue to have it.²¹

It is also recognized that warning would trigger a massive response *in kind*. This is illustrated in the Rand report *Launch Under Attack*, *supra*, which describes how a response would mirror the assessment of an attack's "counterforce" (military) and "countervalue" (economic and population) targets, as follows:

A related issue concerns how we would target the ICBM force under a LUA policy... It seems probable that we would want options to respond to different types of attacks in an appropriate manner while controlling escalation. For example, suppose the Soviets launched a counter-silo only attack, we might want to respond in kind. On the other hand, if the Soviets were attacking both counterforce and countervalue targets, we might want our ICBMs to strike at least some countervalue targets as a hedge against problems in the other legs of the Triad. Of course, we wouldn't want to attack countervalue targets if the Soviets had only gone after our ICBMs. It's clear, therefore, that there would be more to a LUA strategy than just getting a message out to execute the force.

This is cuber,
RAND, though
not SAC.

SAC?

SAC would!

✓
Likewise, the conceptual report *American Nuclear Strategy: A Selective Analytic Survey Of Threat Concepts For Deterrence And Compellence*, RAND N-1238-AF (1979) categorized launch under attack as a "remedial second strike," where remedial means "redress-the-imbalance." (See pp.27 fn.1, 32-52.) This targeting logic fatally overlooks the fact that Soviet ICBM fields are in densely populated areas, making a supposedly symmetrical counterforce launch on warning necessarily a monstrous countervalue escalation.²² Even the detection of a relatively small number of attacking missiles may be met with all-out ICBM retaliation.²³

Problem
with
approach.

Because some parameters of a Soviet first-strike are estimable, launch on warning target

²¹ HASC, DOD Appropriations FY 1981, at 113-4.

²² As the authority Desmond Ball reports:

A US retaliatory strike against the Soviet ICBM fields ... must cover the entire geographic expanse of the Soviet Union, including the more heavily populated areas... [and] three or four ICBM fields in the Moscow area. (*Targeting For Strategic Deterrence*, Adelphi Paper No. 189 (1983), p.27.)

²³ See p.64 below.

sets are to some degree preprogrammable.²⁴ The difference between launch on warning and other target sets is especially significant because of MX missiles, each of which has *ten* of the United States most prompt and accurate warheads, versus *three* slightly less accurate warheads per Minuteman. Outstanding among 1000 Minuteman silos, the fifty MX silos are no secret, and naturally would be first-targeted in a Soviet strike.

In response to Dan Rather's question, "But your basic recommendation is that ... we must at least be prepared to do a launch under attack?" Weinberger told TV audiences: "We aren't eliminating anything."²⁵ General Burke explained the matter less evasively:

TCS | The United States never has and never should renounce just what you said [launch on warning]. That is always there as an ultimate deterrent. We must always preserve that. We always want the option. We are going to put our finger on the trigger and he is going to put his finger on the trigger. As soon as we get into a crisis situation, long before he has pulled that trigger, we know our only choice is to use it or lose it, we are going to get very close to the trigger and he is going to know we are doing that, and he is going to do it. And I think the analogy of two scorpions in the bottle will be very apt. The other problem, of course, is there is just not much time.²⁶

YES!

Experts concur that there is not time to conclusively verify an attack warning. A proper decision is out of the question: there isn't time for a cup of tea.²⁷ As Senator Goldwater told General Ellis in 1981: "Are not those [launch on warning] conferences rather automatic? If you can complete a conference in [deleted minutes], that is a fast conference." General Ellis replied: "*There is a procedure that has been defined. The purpose of that conference is to get a decision.*" Goldwater retorted: "You ought to change the word conference. That sounds too long."²⁸ I propose the word

see
The purpose
of that conference
is to get a decision
...
be true ...

²⁴ See, e.g., *MX Missile Basing*, *supra*, at 410.

²⁵ See *New York Times*, 1982, May 27, p.31.

²⁶ HASC, DOD Appropriations FY 1981, p.1044.

²⁷ The common maxim that one should count to ten before striking a blow is pertinent. Proper consideration is required in the taking of potentially injurious, let alone catastrophic, acts, a prudential matter spelled out under Rule VII in Descartes' *The Direction of the Mind*:

If we wish our comprehension to be complete, those matters that promote the end we have in view must one and all be scrutinized by a movement of thought that is continuous and nowhere interrupted; they must also be included in an enumeration which is both adequate and methodical.

²⁸ SASC, DOD Appropriations FY 1982, pt.7 p.4218.

about - not quite. Note that false alarm - 1978 was caught - none led to E. events, or even launch of bomber.

drill.²⁹ The vestigial person-in-the-loop is flushed and rushed through a mandatory menu. The button pushes the people.

Regarding *real* launch on warning drills, General Herres explained the time constraint:

The attack warning and attack assessment system detected 580 missile launches last year [1984]... Each of those 580 missile launches was assessed, and the process of course begins with the people at the sensor sites and runs all the way through the system to the Deputy Director for Operations in the National Military Command Center. Our goal is to have an assessment on each one of these as we are tasked to do by the Joint Chiefs of Staff, an assessment of each one of those events in the National Military Command Center, in a matter of minutes.³⁰

How many real? (any?)

The numbers of military "conferences called to evaluate possible threats" (false alerts) from 1977-1984 are:

1977	43
1978	70
1979	78
1980	149
1981	186
1982	218
1983	255
1984	153

why?

Six of these (two each in 1978, 1979, and 1980) escalated to "threat assessment conferences" (false alarms causing nuclear alerts in which NORAD, SAC, and Pentagon commanders participated).

Since 1985, the false alert figures have been classified.³¹

²⁹ Blair (see fn. 100 below) has summed it up:

Under this kind of time constraint all he [the President or his deputy] can do is receive an almost canned, scripted set of advice from his senior military advisors who are in the field. There's no time for the President to call up the director of the CIA and talk to him, to convene a conference of intelligent, experienced, wise political advisers to talk about the situation. There's no time for that. It's essentially a drill, a drill that is set in motion by the belief on the part of the NORAD commander that the U.S. is under attack. And the question becomes, what really determines that level of confidence? How can a human being come to believe with confidence that the United States is under attack, to reach that judgment in three or four minutes?

(Interview, 1987, with Gary Krane, Ideal Communications, Washington D.C.)

³⁰ *Our Nation's Nuclear Warning System*, *supra*, p.82.

³¹ See *The Defense Monitor*, vol.XV no.7, *Accidental Nuclear War: A Rising Risk?* 1986, from the Center for Defense Information, Washington. In 1985, NORAD began denying Freedom of Information Act requests on the novel ground that it was an international organization (U.S.

*situation Pres
focus is defined
by this (near-
certainty of NORAD...?)
Can't tell Pres exactly
(three or four min?)
SEE
C.I.
Submarine
of Pres.*

In addition, *exercise* launch on warning drills differ from the reality only in that valid launch codes are missing. After stressing the dominance of launch on warning rehearsals (quoted at p.11 above), General Dougherty continued (pp.412-3):

Training in a nuclear command is intense. Training scenarios and missions are designed to be as rigorous, realistic, and demanding as they can be made in peacetime, even if such training exacts penalties and incurs hazards -- and it does. Many of the nation's nuclear weapons are designed for one-time use; thus, if they are to project the greatest deterrent value, every single procedure and requirement for employing these weapons, from communicating the national command authorities' order to launch, to actual penetration, impact, and explosion on the designated target, must be seen to be believable, robust, and reliable before any of them have ever been used. There is no room for deception or make-believe within the nuclear commands; their weapons systems are real, their crews are capable and experienced; they must and will respond to proper authority, as will their commanders. A training scenario for some weapons is designed so that an actual execution is distinguishable from a practice one only by the authorized release and enabling codes. And the scenarios are being repeated, practiced, and evaluated constantly.

Small wonder an interview with a Minuteman launch crew found:

[Launch crews] are never sure whether they are drills or not, until well into the procedure... Had it ever happened that while on duty, a situation developed that they thought was the real thing? The two crew members smiled at each other. "Yes, it has happened," says Clark "but when it does you react - you don't think. That's what we are trained to do."³²

As part of such rehearsals, each month the military generates some forty "end-to-end" test Emergency Action Messages (EAMs), or launch orders.³³ An EAM contains an authentication code, an enabling code (not needed for the Navy's cruise and ballistic³⁴ nuclear missiles), identification of the sender, a SIOP option number, and a universal time-zero for synchronization. According to Ashton Carter:

and Canadian), and so exempt. One wonders whether this argument can be sustained after the 1986 assignment of the primary warning mission to the strictly U.S. Space Command. See p.37 below.

³² *Armed Forces Journal*, Sep 1981, p.37.

³³ *Our Nation's Nuclear Warning System*, *supra*, at 77,130.

³⁴ A "ballistic" missile flies at several thousand miles an hour in a direct arc to reach its target in the shortest possible time. A "cruise" missile flies at several hundred miles per hour, close to the ground, and navigates towards its target.

Each piece of information should take no more than 5 characters. When this number is doubled to account for "overhead" due to error correction and security, the EAM ends up no longer than 40 characters, or some 250 bits.³⁵

The possibility of a misinterpreted test EAM merits consideration, for determining whether an "ostensibly correct signal [EAM] is, in fact, valid" is "an immensely difficult decision."³⁶

That the present LOWC is geared to meet the rapid contingency of a submarine initiated attack on command, control, and communications became clear as early as 1981, and in 1983 General Davis confirmed that the timeline had been shortened specifically to provide against a decapitation attack on command, control, and communications:

Sen. Nunn: Is there any doubt that we are moving to a prompter response in terms of retaliation than we were, say, 3 or 4 years ago?

Gen. Davis: No; I think we are properly concerned about survivable command control communications. In order to give us prompt capability which we did not properly have in the past, it has been recognized.³⁷

Given this perceived necessity for rapid response, it makes little difference that the military is now proposing to regularly maintain MX missiles in submarine-vulnerable "rail-garrison" mode, readied for launch on warning.³⁸

Indeed, by 1987, Secretary of the Air Force General Aldridge wrote without pause:

[B]allistic missiles launched from submarines off U.S. coasts would have flight times of a few minutes. Space platforms allow the

³⁵ *Managing Nuclear Operations, supra*, at 223.

³⁶ HASC, DOD Appropriations FY 1987, pt.3, pp.533,536, which also states (emphasis added):

Mr. Chappell: According to the National Security Agency [NSA] which produces the codes and authenticators used for emergency action messages "EAMs are based on obsolete manual codes and authenticators that suffer from inherent vulnerabilities to: spoofing, transmission errors, material compromises, and misuse." Why does such a crucial function as transmitting an EAM have so many severe shortcomings?

Gen. Powers: ...There are steps under way to make transmission of that message *easier*... The format and length of the EAM is under study by OJCS [Organization of Joint Chiefs of Staff] with the view to reducing the preparation and transmission times and increasing the Probability of Correct Message Receipt [PCMR].

³⁷ *MX Missile Basing System, supra*, at 417. See also General Allen's quote at p.1 above.

³⁸ See p.30 below.

from what to what?

assessment of the nature and magnitude of the attack, helping the President to determine and order an appropriate response. The attack warning and assessment functions have become critical in an area where the consequences of surprise can be disastrous... U.S. space-based systems represent such a capability that they would provide timely and comprehensive warning of *any* attack on the United States.³⁹

As Latham gushed in 1985 with respect to systems designed to transmit launch orders:

[T]hey need not survive the initial phase of attack on our homeland as they will have performed their mission... the transmission of a message from one satellite on the other side of the earth through multiple satellites and ground stations to the NORAD Command Center at Cheyenne Mountain is continuous, does not require operator intervention and takes less than two seconds!⁴⁰

Substantial hardware is dedicated to the "get-the-EAM-out-before-impact" mission. The leading 1959 communications link for conveying an EAM in the event of an attack warning is the Ground Wave Emergency Network (GWEN). Initial Operational Capability for GWEN (dubbed Thin Line Connectivity Capability) was realized in 1986. *Receive-only* GWEN terminals will be in place in missile fields by 1988.⁴¹

³⁹ *International Security*, Vol. 11, No. 4, Spring 1987, at 152, 156.

⁴⁰ *Our Nation's Nuclear Warning System*, *supra*, p.129.

⁴¹ See HASC, DOD Appropriations FY 1987, pt.3, p.653. As Latham explained:

Question: Will you please tell the Committee the three or four principal intended uses of GWEN?...

Answer: When fully deployed, the GWEN system will connect the AW/AA [Attack Warning/Attack Assessment] sensor sites, command centers, aircraft bases and missile launch control centers. During the pre-attack or crisis management phase, the system will be used to operationally pass warning data from the AW/AA sensors of the NMCS [National Military Command System], NORAD, and SAC command centers; in addition, SAC will use the system to transmit exercise positive control launch [PCL] messages, [deleted]. The Minuteman [and MX] force is the only leg of the triad capable of receiving GWEN transmissions directly...

Question: Please state in positive terms the strategic purpose of GWEN.

Answer: The strategic purpose of GWEN is communicating vital information and commands during the opening minutes of a Soviet nuclear attack on the United States... The DOD recognizes that GWEN stations are unhardened and not survivable to direct nuclear attacks...

Question: How long, in your view, can GWEN survive in a nuclear war?

Answer: [I]f the Soviets elected to directly attack the GWEN nodes, it could only be expected to survive a length of time equal to the flight time of the weapons attacking it...

The launch on warning procedures that have been in place for some years now are readably reviewed by Arkin and Pringle in *SIOP* (1983) pp.97-100:

Within less than a minute of a missile launch, the satellites can sense the infrared heat from the rocket plume and the burning missile motor -- as long as there are no clouds covering the launch site. If there are clouds, the sensors will pick up the motor's heat once the missile has broken through the cloud cover... At each readout station the special characteristics of the "mission data" are analyzed comparing them with a "library" of previous test flights or satellite launches, and an assessment is made as to whether the launch is on a "threat fan," that is, a path ending in the United States or an allied country. All this information is transmitted instantaneously via satellite to the SAC underground command post at Offut Air Force Base, the NORAD command post in the Rocky Mountains, the National Military Command Center in the Pentagon, and the Alternate National Military Command and Control Center at Raven Rock, Pennsylvania. Early warning duty officers in the U.S. Air Force radar stations around the world routinely watch every launch of a rocket within the Soviet Union and China and determine whether it is a test, a routine civilian space shot, or a threat. If it appears to be on a threatening course -- the military jargon is "threat azimuth" -- the warning officers run a sixty-second "confidence rating" check of their sensors and computers to make sure they have not been fooled by them... In a real missile attack, a green outline map of the United States appears on the TV screens at the early-warning stations and at the continental command posts. A series of thin lines, each representing a missile, starts to edge its way toward the American mainland. As the lines draw closer, more lines break away from the original ones, indicating that the individual warheads are streaking towards their targets. At the bottom of the screens, a counter then starts to indicate the number of warheads in the attack. By simply pressing buttons on their consoles the battle staff in the command posts can call up more precise information. [It is also possible to simulate such displays.] They can observe data on all warheads at once or on individual warheads. The computed impact point of each warhead is given precisely in longitude and latitude and each U.S. target -- a city, an airfield, or a command center -- is given in code as it is listed in a data bank called the Selected Target for Attack Characterization, or STAC. In a mass attack, the computers will also assess the size of the raid and put it into one of five classes: Class 1, urban-industrial; Class 2, missile fields; Class 3, bomber-tanker bases; Class 4, command and control centers; Class

Question: How do you plan to protect GWEN against [deleted]?

Answer: [Deleted.] For any weapon to pose a significant threat to GWEN it must be capable of surgically severing the network prior to a message propagating through the network. This severing action, called a cutset attack, must kill several contiguous nodes [which would be easy to do]. (HASC, DOD Appropriations FY 1987, pt.3, p. 496-7,502,656.)

5, Washington, D.C. This classification would be instantly available to the military commanders and to the president and is the only help the computer will provide in assessing Soviet intentions in an attack. In theory, the president would then select a response from the SIOP. The immense pressure for immediate action would become overwhelming as the missile counters in the command posts registered the course of the attack, ticking off the number of warheads and the seconds before the blasts: "Time of first event," "Time to go," "Number not yet impacted," "Washington impact time." The flow of information is staggering. The battle staff can call up on their display screens precise details of the launch points of the missiles in the Soviet Union and many of the weapons in the SIOP can be retargeted, almost instantly, if need be. A Minuteman missile with three warheads targeted on Soviet missile silos could be redirected to military command bunkers to avoid hitting empty silos, for example. Once the president or his designated deputy has decided on the response to the computers' assessment of the attack, it is only a matter of pressing more buttons and the computers will oblige with an assessment of nuclear damage worldwide... the computer will do their bidding. It is just as good at attacking as it is at defending.

Today, the pressure on Pentagon and Air Force commanders to endorse a computer-prompted launch on warning seems compelling. The first detonations would kill most of them. The rest would be killed in the next few minutes, and would know of the earlier detonations only through electronic signals, or, rather, through losses of signal, which are not uncommon.⁴² Also, ICBMs must be physically launched at least a couple of minutes before the arrival of attacking missiles, else they could be destroyed by incoming missiles exploding in their flight corridors.⁴³ Also, the risky reliance upon launch on warning has darkly deepened as MX missiles have become operational in vulnerable silos. Mr. Bundy's preproduction caution now applies: "I think that we should bear in mind that an element of launch on warning is undefined in size and shape as a part of the MX in Minuteman."⁴⁴

In 1983, armed by the Scowcroft Commission's analysis (discussed below), the Air Force

⁴² Both Daniel Ford in *The Button, supra*, and Arkin and Pringle in *SIOP, supra*, report dead sensors when they visited NORAD.

⁴³ Code from a Rand program modeling launch on warning implicitly recognizes this fact, and incidentally confirms that launch *under attack* (LUA) indeed means launch on warning:

IF (Sufficient time-to-RED-impact remains)
THEN (Launch BLUE ICBMs immediately (LUA))

RED=Soviet, BLUE=U.S. See Rand note N-1838-DNA, 1983, p.99.

⁴⁴ *A Resolution to Approve Funding for the MX Missile*, S.Con.Res. 26, GPO 1983, p.58.

disputed this, e.g.:

Sen. Warner: Do you believe the deployment of MX in Minuteman silos would result in the United States adopting a launch-on-warning posture?

Gen. Davis: I do not.⁴⁵ *meaning? i.e. CUA/COI - major attack on bunkers?*

Since 1983, to the surprise of some Senators, reliance on launch on warning has repeatedly been evidenced in the testimony of Air Force commanders, e.g.:

Sen. Exon: General, what you are saying is that you are not persuaded by the argument that has generally been conceded by the Air Force that the 20, 50, or 100 MX's in current Minuteman silos are sitting ducks ... and that without question they would be taken out early by a first-strike from the Soviet Union? That is still true, is it not?

Gen. Gabriel: I would not use the term 'sitting duck', no. In a ride-out scenario we would lose quite a few of them ... There are options I won't go into. Obviously, if he is going for our missile silos, there will be a period of time when we can see his missiles coming. We have sensors that will tell us that. There are options that obviously don't make them sitting ducks...

Sen. Exon: *What I am suggesting is that there has been a dramatic change in the ICBM mission requirement and the need for the MX.* (SASC, DOD Appropriations FY 1986, pp.1164-5.)

Rep. Aucoin: Let's assume we base the MX in parking lots⁴⁶ as you indicated you would be willing to do. What would be the military utility of a weapon based that way?

Gen. Vessey: ... what the MX does as a part of the ICBM force, is add a modern, very accurate missile which puts at risk the Soviet hardened missile silos and hardened command centers that permit them to carry out their war plan... You mentioned the vulnerability of the missile system ... vulnerability is compensated for by a warning system, a command and control system... Now, if it were safer, I would be more pleased.

(HASC, DOD Appropriations FY 1986 hearings, pt.1 p.104.)

Gen. Davis: Combined with a good warning system, and good command and control system, silo vulnerability is not a major issue ... any potential vulnerability of the land-based leg is compensated for by the warning system, the command and control system ... The individual missile's survivability is better than we projected... warning systems that incorporate dual phenomenology and more timely warning are with us today...

Sen. Proxmire: In what characteristics is the MX superior...?

Gen. Davis: Characteristics, virtually 100 percent alert rate on a day-to-day basis, instant command, control, and communications... In order for the Soviets to coordinate an attack, warning comes in

⁴⁵ MX Missile Basing System, *supra*, at 384.

sufficient time so that your ICBM's are not necessarily vulnerable and the Soviets know that.
(*MX Peacekeeper Missile Program*, S.Hrg. 99-72, GPO 1985, pp.13,19,59,75,78.)

The official rationale for silo-based MX deployment over-cleverly disposes of the launch on warning issue. The *Report of the President's Commission on Strategic Forces*, (April 1983, p.7) set forth the definitive version:

[W]e believe that MX's placed in Minuteman silos is an adequate deployment at reasonable cost... Especially, we believe there is still an important synergistic survivability between the ICBM and bomber forces in that it is difficult, if not impossible, for the Soviets to attack both simultaneously... [I]f the Soviet war planners should decide to attack our bomber and submarine bases and our ICBM silos with simultaneous detonations - by delaying missile launches from close-in submarines so that such missiles would *arrive* at our bomber bases at the same time Soviet ICBM warheads [with their longer time of flight] would arrive at our ICBM silos - then a very high proportion of our alert bombers would have escaped before bases were struck. This is because we would have been able to, and would have, ordered our bombers to take off from their bases within moments after the launch of the first Soviet ICBMs. If the Soviets, on the other hand, chose rather to *launch* their ICBM and SLBM [submarine-launched ballistic missile] attacks at the same moment [hoping to destroy a higher proportion of our bombers and SLBMs having a short time of flight] there would be a period of over a quarter of an hour after nuclear detonations had occurred on U.S. bomber bases but before our ICBMs had been struck. In such a case the Soviets should have no confidence that we would refrain from launching our ICBMs during that interval after we had been hit. It is important to appreciate that this would not be a "launch-on-warning," or even a "launch under attack," but rather a *launch after attack* - after massive nuclear detonations had already occurred on U.S. soil.

Ever since, this thesis has been an Air Force dogma.⁴⁷ Yet, it has two fatal flaws. First, there is the problem of *immediately* confirming detonations. A communications blackout might be the only "proof" of detonation available to SAC's commander in chief (CINCSAC) in the time-frame. Of course, an SLBM barrage could be arranged so that SAC headquarters and Washington were hit virtually simultaneously. In any case, sensor report of nuclear explosions is also computerized, and

⁴⁶ General Vessey gained notoriety for stating that he wanted the MX even if meant basing it in the Pentagon parking lot. This is about what rail-garrison basing amounts to. See p.30 below.

⁴⁷ See, e.g., SASC, DOD Appropriations FY 1987, p.1274.

not proof beyond reasonable doubt of such detonations.⁴⁸ Ashton Carter writes:

The short flight time of the SLBMs... increase U.S. confidence in a decision to launch the Minuteman under attack, since if reliably detected, the detonations would indicate more vividly than warning sensor data that a true attack was under way. Whether burst detector data would be more persuasive than warning sensor data is not entirely clear: both would be received remotely by command centers in the form of computer data.⁴⁹

The second flaw in the MX rationale is more important:

Changing the land-based ICBMs to be dependent on tactical warning ... gives the ICBMs the same survivability failure mode as the bombers -- sneak attack by cruise missiles or fast trajectory SLBMs.⁵⁰ *su D-5!*
STEALTH

This is not because the SLBMs can presently destroy missiles in their silos, but because they can destroy command centers and communications nodes and links:

Forward-deployed [submarine-launched missiles] could arrive in the Central United States within 8 to 15 minutes of launch and at coastal targets, such as Washington, within 5 to 10 minutes. This means that relatively soft targets such as command bunkers and communications nodes, if targetable, could be destroyed early in the attack.⁵¹

Radars are among the softest targets, and satellite sensors could be disabled in seconds by enemy lasers (see fn.113 below). As Weinberger conceded "We have learned that our nuclear forces are only as strong as the C³ systems that support them."⁵² More memorably, 1950's CINCSAC Thomas Power reflected that "Without communications, all I command is my desk." Today, this assessment is unduly optimistic, for CINCSAC would not possess a desk after an initial submarine barrage. In 1985, former CINCSAC General Holloway frankly feared that: "If the enemy struck first --" *!*

B.T. ⁴⁸ False impact reports have occurred (see, e.g., *False Alerts, supra*, at p.5), and even the characteristic double-pulse of a nuclear detonation was recorded close to the Antarctic. The latter event was mystified after an Australian plane found no expected residual radiation in the area, which some disbelievers suggest could have been a cover-up of a South African atmospheric nuclear test.

⁴⁹ *Managing Nuclear Operations, supra*, at 579.

⁵⁰ Ex-Air Force General and now Air Force scientific advisor John Toomay, *International Security*, Fall 1987, at 199.

⁵¹ *MX Missile Basing, supra*, at 150.

⁵² SASC, DOD Appropriations FY 1987, p.328. C³ stands for command, control, and communications.

barraged Washington, Omaha, et cetera -- we [the Air Force] would never recover, never recover control, never recover anything."⁵³

True, the Strategic Air Command maintains a nuclear command post which is airborne at all times, named Looking Glass. Although its route over the mid-West is randomly varied, Looking Glass may nevertheless be susceptible to blast and/or to the ElectroMagnetic Pulse (EMP) of submarine-launched nuclear missiles.⁵⁴ The hope that Looking Glass would survive the arrival of Soviet ICBMs is not high. There is a clear chance that it would not survive the initial submarine barrage, and, even if it did, that it would not be able to order the launch of U.S. ICBMs before the follow-on arrival of Soviet ICBMs. In any case, just like CINCSAC, Looking Glass depends on sensor warning of attack relayed from vulnerable data fusion headquarters.

The high priority of pre-impact one-way communications links to the missile silos (especially of GWEN; see p.19 above) for carrying launch orders evidences the scant faith that the Air Force has in the post-impact survival of Looking Glass, whose on-board commander is reputedly the lowest-ranking officer having predelegated nuclear launch authority. As General Herres grimly reflected, "any [Air Force] system that I know of is vulnerable to something... even the ones that are most heavily protected and armored are all vulnerable to something."⁵⁵

✓ After years of deceitful battling to to get them, the Air Force would hate to waste its prompt and accurate Minuteman and MX command-bunker-busters, notwithstanding the guaranteed survival of the nuclear submarine fleet. Over half of the United States nuclear firepower is submarine-based; there are always some twenty American attack submarines patrolling the oceans; and a *single* nuclear submarine could devastate every city in the Soviet Union. Besides,

see
Profile
in 195-9

✓ ⁵³ *Our Nation's Nuclear Warning System, supra*, at 11. See fn.71 below for the similarly stated concern of a Soviet general.

⁵⁴ EMP, which is produced by all atmospheric nuclear explosions, is a grave threat to electronic systems, which must be specially engineered to resist it. This is exacerbated by the extraordinarily difficult task which Looking Glass has, of trailing a five-mile long antenna. See *The Button, supra*, *Managing Nuclear Operations, supra*, and especially *Strategic Command And Control*, Brookings Institute, 1985, for discussions of Looking Glass vulnerability and the EMP threat in general.

⁵⁵ *Our Nation's Nuclear Warning System, supra*, p.72.

cruise missiles and other nuclear weapons are widely dispersed on boats and bombers. As MIT's engineering and arms control Professor Jack Ruina observes:

Given the size, composition, and essential missions of our current strategic force... it is only necessary to proceed with an ICBM technology program... It seems almost superfluous to point out yet again that the current retaliatory capability of and the flexibility of nuclear use of nuclear weapons is more than adequate for basic deterrence... Since the nuclear arsenals of both powers are already immense and varied, we would be risking little to relax some on weapons procurement.⁵⁶

vaunt
D-C } Nuclear retaliation is assured, even though its co-ordination could not be guaranteed. Conclusively, there is no overriding military necessity for the desperate launch on warning hair-trigger, except from the myopic perspective of Air Force officers whose traditions understandably, but in this case vainly, vaunt maximum readiness.

The Air Force's disregard of the invulnerability of submarines is evidenced by many petty asides, e.g.: "I do not have submarines on here, but it is the same basic process. The reason I do not have submarines, this slide was developed by the SAC people. It is the best we have been able to come across to show people how it [decapitation] might happen in a time sequence."⁵⁷ Understandably, the Navy has shown contempt for Air Force nuclear planning, "giggling" at a key presentation of their protracted nuclear warfighting scenarios.⁵⁸ Strategic experts sardonically call

⁵⁶ *International Security*, Fall 1987, *ICBM: More Is Not Better*, at 188.

⁵⁷ SASC, DOD Appropriations FY 1980, p.3300. Air Force thinking is exemplified by a spontaneous message from Ron Wanttaja, ex-NORAD Satellite Systems Engineer, posted to the MIT Arms-Digest bulletin in February, 1988:

Consider this scenario: The Soviets blind most of the US Early Warning satellites. Please note, there are *not* a lot of birds tasked for EW [Early Warning]; they wouldn't have to take a lot out... The U.S. immediately goes to high DEFCON. SAC places the bombers on air alert, the missile crews batten down the hatches, the President dives into the airborne command post. The Soviets do *nothing*... Two months of this type of operation, and the BUFFs (SAC B-52s) are down for maintenance, the missile crew's morale is at rock bottom, and the cripples are falling by the wayside. The President is back in DC, working on the budget. *Then* would be a good time for a major attack.

Then would not be a good time for a major attack, because the submarines would be able to retaliate.

⁵⁸ See *The Button*, *supra*, at 110.

Air Force versus Navy nuclear rivalry the *real* war. Since World War II, the Air Force has been jealously possessive of its supreme control of nuclear weapons, but the assignment of such weapons to the Navy led, by 1960, to a confusion of overlapping target sets.⁵⁹ As the authority Desmond Ball records:

The Air Force had always viewed the Navy's acquisition of atomic weapons as a usurpation of its primary responsibility for the strategic bombing mission. The deployment of fleet ballistic missile submarines would give the Navy even more of a role in this area. The creation of a unified 'strategic command' would allow the Air Force to maintain its primacy, particularly since CINCSAC would be the most logical candidate for the unified commander position. The Navy officials not surprisingly objected... To diffuse the situation, the Secretary of Defense ... [i]n August 1960 directed the formation of a full-time Joint Strategic Target Planning Staff ... located at SAC Headquarters ... headed by the SAC Commander... The preparation of the 1960 SIOP was a process marked by intense and bitter rivalry between SAC and the US Navy, and the December outcome was a direct reflection of this... George Kistiakowski, who President Eisenhower sent to SAC Headquarters in early November 1960 to report on development of the SIOP, wrote in his diary that "This puts me in the midst of the worst hornets' nest."⁶⁰

Kistiakowski was responding to virtual insubordination by CINCSAC General Powers. Before his visit, President Eisenhower had provided Kistiakowski with a special signed order directing General Powers to open his books to Kistiakowski and two accompanying technical experts, weapons scientist Rathjens and the CIA's chief scientist "Pete" Scoville. But the visitors were snubbed in petty ways, such as being greeted by an officer of below-protocol-required rank, nor were their questions answered. In three days, the group obtained only a one-hour briefing on the SIOP, yet they identified an overkill factor in their report that, President Eisenhower said, was enough to "frighten the devil out of me."⁶¹

⁵⁹ Kissinger then observed, "disputes about targets are usually settled by addition - by permitting each service to destroy what it considers essential to its mission." (*The Necessity For Choice*, 1960, by Kissinger, at 82.)

⁶⁰ *Targeting For Strategic Deterrence*, by Desmond Ball, Adelphi Paper No. 189 (1983), at 9-10,42.

⁶¹ *SIOP, supra*, at 102-104. As Kaplan reports (*The Wizards Of Armageddon, supra*, at 268):

In Omaha, Rathjens looked through SAC's atlas of Soviet cities, searching for the town that most closely resembled Hiroshima in size and industrial concentration. When he found one that roughly matched, he asked how many bombs the SIOP "laid down" on that

Despite SAC's dominance over the Navy in general nuclear planning, the fact of the matter is that the Navy won out in its insistence on deploying only nuclear missiles which it has the physical capability to launch at any time. This is true even of the hundreds of cruise missiles now dispersed on boats around the globe, which the Navy adamantly refused to deploy with "Permissive Action Links".⁶² As is widely recognized:

[T]radition is the altar at which the Navy worships, [and] one of the icons on that altar is the concept of independent command at sea... the Air Force could be said to worship at the altar of technology... There is a circle of faith here: If the Air Force fosters technology, then that inexhaustible fountain of technology will ensure an open-ended future for flight; and that, in turn, will ensure the future of the Air Force.⁶³

Sherry
Postwar
Plans

From the Air Force's cultishly pursued provincial interests has arisen the incalculable risk of launch on warning.

The Minuteman was originally approved in the national hysteria caused by the infamous missile-gap hoax. The MX missile-to-end-missiles was originally proposed in the 1960s especially to solve Minuteman's vulnerability problem through mobility.⁶⁴ This congressional proposal culminated in the Pentagon's Jan 1969 "STRAT-X" study of of basing-mode survivabilities. In the early 1970s, this report led to a firm recommendation by the Pentagon to pursue launch on warning. This was subsequently thrown out by President Carter, who had more exhaustive basing studies made, and then ordered a "Multiple Protective Shelter" (MPS) mobile basing mode. In his *Report to Congress FY 1982*, Secretary of Defense Brown categorically stated:

We must ensure that the United States is not placed in a "use or lose" situation... we cannot afford to rely on "launch on warning".

must every
part of force be
survivable?

city. The reply: one 4.5 megaton bomb and three more 1.1 megaton weapons in case the big bomb was a dud. The explosive yield of the atomic bomb that destroyed one-third of Hiroshima on August 6, 1945, was a relatively puny 12.5 kilotons.

(For opt. stability,
yes - for both
sides.)

Thus, all Hiroshima-sized Soviet towns were targeted with bombs having the explosive power of 700 Hiroshima bombs.

⁶² See p.44 below re Permissive Action Links, and see *Nuclear War At Sea*, in *International Security*, Winter, 1985-6, by Desmond Ball.

⁶³ *The Army in the Strategic Planning Process*, RAND R-3513-A, Apr 1987, 25-6.

⁶⁴ See *Counsels Of War*, *supra*, ch.13, re the missile-gap hoax. See *The MX Decision*, by Holland (1985), for a legislative history of MX.

RAND?

President Carter's MPS basing scheme was finally blocked *in Congress* on account of grass-roots opposition to the deployment in Utah and Nevada, the intended host states. Despite appearances, mobile deployment was halted by provincial, rather than global, or even local environmental, interests.⁶⁵

Even so, the Congress continued to insist on a more survivable basing mode than silos. When asked about the projected ability to launch MX on warning, Under Secretary of Defense for Research Dr. Perry understandably testified that "It must be remembered, however, that MX is being designed to avoid such tactics as launch on warning for its survivability."⁶⁶ No satisfactory mode having been found, the most crucial September, 1983, MX production decision was expected to flunk the missile, but the shootdown of KAL007 just before congressional debate was a red herring taken advantage of to trick the MX opposition. Only years later did the administration admit that, despite having claimed the contrary in successive presidential appeals for MX

also
read
P II

⁶⁵ See *Basing The MX Missile*, an odd report inappropriately prepared by the staff of the House Committee On Interior And Insular Affairs, in August, 1981. (This slim volume is the only report on the MX in the library of Stanford law school.) Representing the collision of the \$40+ billion MX MPS basing mode with the reality of siting, this report told the committee *not* to approve the required public land acquisitions. Although the committee had authority to consider only local concerns relating to the plots of land that needed to be purchased, the report provided five *wholly strategic* reasons for *blanket* refusals of land acquisition permits (at 10-12), and arrogantly announced (at 18) that the two most urgent *strategic* priorities were:

1. *Improve warning and control systems...* This is probably the quickest and most effective way to improve the U.S. strategic posture in the world. This conveys to the Soviet Union that the United States will take the steps necessary to defend itself by enhancing its capability to "launch under confirmed attack"...

2. *Base MX in silos.* Replace some of the Minuteman missiles with the MX... MX could be deployed in silos by 1987, relying on LUCA [launch under confirmed attack] for survivability.

The political incompetence of the committee to make such judgments was underscored by the technical incompetence displayed by the report's authors. That launch under confirmed attack had the disadvantage of being dangerous was not noticed, and the final ground relied upon for rejecting the MPS basing proposal was not thought through. This was simply that all of the 4,600 shelters among which 200 MX missiles would be dispersed could be destroyed in a first-strike. It did not occur to the committee staff that in so doing the Soviets would be disadvantaged by having to expend over two missiles per U.S. missile destroyed. Yet this ludicrous report summarily trashed years of careful study and decisionmaking by the executive branch and by the armed services committees.

⁶⁶ SASC, DOD Appropriations FY 1981, pt.5 at 2936; see also FY 1982, pt. 7, p.3808,3814.

production, it had always had clear evidence that the Soviets genuinely thought the flight was just another spy plane.⁶⁷ Subsequently, the Scowcroft Commission's 1983 report, which carefully glossed over launch on warning (see p.23 above), provided the winning rationale for deployment of the first hundred MX missiles in silos. However, Congress has insisted that only the first batch of fifty MX missiles be silo-based, and so the administration has proposed rail-garrison basing, whereby the MX would, in theory, be dispersed on railcars if there were a strategic warning.

good
Most remarkable in the history of the MX is that at no time was the possibility of reducing its planned size seriously taken, although this obviously could have made truck-basing possible. It is widely thought that this lack of consideration was due to the Air Force's determination to possess a missile too big for naval deployment. Despite attempting to order a smaller mobile missile, the Midgetman, opposition to this scheme from the Air Force has been so intense that the missile has been dubbed the "Congressman." Political commentators speculate that the Congress may have to settle for more MX missiles, if it wants to progress with Midgetman.

The proposed basing of these and a further fifty MX missiles in fifty regularly garrisoned railcars does not credibly alleviate vulnerability problems. Indeed, as Secretary of the Air Force Aldridge advertised, MX missiles will be routinely maintained in launch on warning posture on SAC bases: "The Soviets could never be assured that their bolt out of the blue attack would be successful because we could launch right out of the garrison, if we have to."⁶⁸ It is improbable that

image of four = Wood, above.
⁶⁷ See, e.g., the *New York Times*, Sep 6, 1983, at 15-16 for presidential statements prior to the MX vote. The *New York Times* subsequently reported that in the congressional debate all discussion of MX and chemical weapons as such was "overcome by arguments that centered on sending a message to the Russians." Leaders of both parties in both House and Senate concurred that the KAL007 incident had turned the tide in favor of MX (and chemical weapons) production. Most notably, speaker Tip O'Neil, who was to have led opposition to the MX, changed his mind specifically because of KAL007, stating his conviction that the Soviets knew that it was a passenger flight. To this day there has been no public congressional investigation into the KAL007 incident, even though the Air Force irregularly destroyed radar tapes of the flight, and even though Japanese tapes of the incident, *et alia*, strongly suggest that the course of KAL007 was deliberate. On the contrary, a statutorily required investigation by the National Transport Safety Board was inexplicably cancelled, documents lost, and gag orders placed on all civilian employees. See *Shootdown*, Viking (1986), by R.W. Johnson, for a thorough review of the astonishing evidence.

⁶⁸ SASC, DOD Appropriations FY 1988, pt.1 at 119.

1
they would be visibly taken off launch on warning in a crisis, which would be necessary to disperse them, because this would cause public consternation and demonstration,⁶⁹ besides adding a nasty notch to the Soviet's *immediate* first-strike incentives. Without a LOWC, the MX would only be useable either for first-strike or after a generated alert. But in a generated alert, bombers would be dispersed and so invulnerable, and submarine patrols would have been upped, and these could easily carry cruise missiles as accurate as the MX. Thus, the need for the MX to deter a nuclear attack is simply not there. As John Toomay points out:

D-C

Such systems do nothing to deter the Soviets from surprise attack but do add marginally to a deterrence that has already been enhanced by the "generation" of forces above their day-to-day alert levels... Cost-effective analysis of a system that depends on strategic warning should compare its investment costs per surviving weapon with the marginal cost of generating an additional surviving weapon on our bomber and submarine forces.⁷⁰

1
In sum, the proposed rail-garrison MX represents to the Air Force the "parking-lot" basing mode once sought by General Vessey (see p.23 above), and little more. It threatens first-strike, and undeniably depends most, if not all, of the time on a LOWC that accomplishes launch even before the arrival of Soviet submarine launched missiles. Since the bomber force could also be dispersed on strategic

Note finally that, to the military mind, the agreed retirement of a few hundred Euromissile warheads marginally *adds* to the reliance upon the few thousand bigger Minuteman and MX warheads, which depend upon launch on warning. In particular, the Air Force maintains that in practice only their ICBMs back up the Pershing's precise "prompt hard-target kill" capability.

⁶⁹ Note especially that rails are easily sabotaged or blocked.

⁷⁰ *International Security*, Fall 1987, at 201.

TERMINOLOGICAL DISAMBIGUATIONS AND THE PREVAILING DOCTRINE

The Soviets are deterred when they are not sure in the event of an exchange whether or not there is a clear margin of victory for them. That is, they are deterred when they are not sure when the damage to the Soviet Union is such that they do not emerge the clear winner. That is the essence of deterrence. All other thought, of course, adds to support that. The retaliatory policy of the United States, and I am as aware, probably more aware than anyone else since I deal with this on a daily basis, ... [avoids] a public discussion of whether or not you are going to launch on warning... The more ambiguous you can leave that point, the better off you are. You should not discuss U.S. strategy, and I do not think anyone has ever seriously defined ride out as riding out a complete attack. That would be suicidal, so a prompt response on the part of the United States... is what deters. (CINCSAC General Davis in MX Missile Basing System and Related Issues, *supra*, Apr 1983, at 395.)

what
is it?

suff.?
mc?

for future
debate!

Is there a launch on warning policy? There isn't, but we are ready for launch on warning. (General Milstein of the Soviet Union, 1987.)⁷¹

⁷¹ The Soviet Union claims to be operating a LOWC in the same ambiguous fashion as the United States. In passing over the Soviet LOWC, it is noted that on the one hand the Soviets maintain stricter civilian control over their nuclear weapons, but on the other hand they are much more dependent upon a LOWC than is the U.S., because some 75% of their missiles are land-based. However, the Soviets have developed truly mobile ICBMs. See, e.g., the article on Soviet nuclear command and control by Desmond Ball in the 1987 *Handbook of Command, Control, Communications, and Intelligence*, put out by *Defense Electronics*. For the record, in 1983 Defense Minister Ustinov categorically denied that the Soviets had or were planning a LOWC (*New York Times*, Mar 17, 1983, p.A1), but senior Soviet General Milstein nullified this in a 1987 interview (*Ideal Communications*, Washington):

A. As far as the launch on warning is concerned, you have to understand the situation that if there is no time, and... according to the technical means there are hundreds of nuclear weapons going to the territory of this side, there is only one way to answer to this, to have a launch on warning strike... On each side, its readiness to strike, it consists of two or three minutes, so in two or three minutes there could be a launch... [A side] has no time in a contemporary situation to make a comprehensive decision, so it could launch on warning. Launch on warning, it means that if you have data that there is going to be an attack on you, you have not to wait till this strike comes on target, but to answer it, because then you'll not be able to use your force, and you'll not be able to give your retaliatory blow. So, when the people say that "we are not planning this," or "there is no such danger," I think it is wrong because there is always such a potential.

Q. What is the Soviet position about launch on warning?

The disingenuousness of Latham's "absolutely not" denial of anything like launch on warning policy (at p.12 above) is manifest from the fact that the launch on warning target sets, whose co-ordinates are now resident in missile guidance computers, were determined by a sub-panel of the National Targeting Policy Review Study.⁷² Officially, the United States not only denies having a launch on warning policy: it also denies having a "policy not to launch on warning."⁷³ While the launch on warning shop of horrors does brazen business, there is no consensus as to whether there is a meaningful difference between launch on warning policy and capability. Rather, there is fog of ambiguity fostered by defense policy makers who strangely counsel that "an uncertainty is, of course, a deterrent,"⁷⁴ as though definite retaliation would deter

for public-
to defend
us. C.J.

"We would not necessarily
launch on any degree
of warning prior to
confined deterrence."

A. You'll see the Soviet position expressed in a declaration that we'll not be the first to use a nuclear weapon...

Q. Do you have a launch on warning policy?

A. There is no such a policy, I am speaking about the objective situation, because it's uncontrollable. You see, nobody can predict what could be the situation in the nuclear attack. And if there is an attack on the Soviet Union territory, then there will be a retaliation... Nobody could exclude such a possibility... I think it is very dangerous to wait till these hundreds of missiles, thousands of warheads, will reach your territory, and then you will not have the possibility to make a retaliatory blow. So you have to fulfill this by ear, but at the same time I hear the United States is of the same opinion... Is there a launch on warning policy?? There isn't, but we are ready for launch on warning... The readiness of these forces gives the possibility of making or waging nuclear war, because otherwise there is no deterrent because they have no potentiality for anything, so you can't conceive of them as a deterrent force. That's a danger, you know... What is launch on warning? It's a decision during the attack, whether to wait or to launch... If there is data that hundreds of missiles are coming, what should be the decision? Nobody knows. Maybe the easiest decision is make a launch on warning. Whether it's the most rational nobody knows... Nobody can tell that there is no such a possibility or that we are against this because nobody could say what would be the decision.

with land-
based

One reason given by Senator Nunn for not deploying more MX missiles is that it would be counter-productive to threaten all of the Soviet's land-based silos, due to the increased pressure on the Soviets to "use them or lose them." See fn.132 below, and *International Security*, Fall 1987, *ICBM: More Is Not Better*, by Professor Ruina, and Nunn's parallel interview with *Ideal Communications*, 1987.

⁷² See the Rand report *Launch Under Attack*, *supra*, p.II-5-8; *Can Nuclear War Be Controlled*, Adelphi Paper No.169, 1981, by Desmond Ball, at 2; and SASC, DOD Appropriations FY 1981 pt.5 p.2936.

⁷³ See, e.g., HASC, DOD Appropriations FY 1981, p.113-114.

⁷⁴ Fred Ikle in *First Use Of Nuclear Weapons: Preserving Responsible Control*, *Hearings before the*

no - can now trouble with public.
less than merely possible retaliation! In the case of launch on warning, ambiguity is apparently intended not so much to deter the Soviets from attack, as to deter the public and the Congress from voting against its risky operation.

The establishment's leading light is ex-chairman of President Reagan's celebrated Commission on Strategic Forces, Lt.-General Scowcroft. Asked if he would find it desirable to adopt launch on warning or "that type of capability or policy," he replied: "I can speak not only for myself but for the Commission. We do not feel that a launch on warning policy is wise or acceptable for the United States. That is different from having the capability to do it."⁷⁵ Military commanders, whose opinions are final, understand that a policy by any other name is still a policy, a school of thought which General Herres recommended when he referred to the present "hair-trigger... launch-on-warning posture or strategy or policy, or whatever one might chose to call it."⁷⁶

BLUFF
(How about: a private determination not to do it; like McN administration FU.)

The school of military realism receives the summary support of philosophy professors. See, e.g., Professor Freund in *International Journal On World Peace*, Vol. IV No.3, Jul 1987, at 73-4 (emphasis added):

CIVS.
Mil. -
suppression
ambiguity
meant a
delaying COW
to strong
a "moderate"
signal.

Deterrence, whether it be at the individual level or at the national level, involves in its most basic form the lodging of a threat against one's opponent. This threat must be of sufficient severity to make the opponent unwilling to have the threat actualized... Furthermore, two other factors are essential to any effective deterrence system: the rationality of one's opponent and the

③
✓
④
✓
House Committee on International Relations, GPO (1976), p.181. See also: *The Role Of Deception In Decision Theory*, by I. Greenberg in the *Journal Of Conflict Resolution*, Mar. 1982, especially the subsection entitled "The Role Of Deception In Decisions Under Risk"; *The Command and Control of Nuclear Forces*, by Bracken, Yale University Press (1983), pp.100-112; and *Measuring Strategic Stability with Two-Strike Nuclear Exchange Models*, by Grotte in *Journal of Conflict Resolution*, Vol.24 No.2 (1980), p.213. See also *An Annotated Bibliography Of The Open Literature On Deception*, RAND, Santa Monica, N-2332-NA, Dec. 1985, which comprises 114 pages of listings grouped into a dozen subjects. A pertinent citation is *Understanding Reflexive Control*, 1983, by W. Griego, which, based on game theory, frankly treats "Implementing Reflexive Control ... The Work of a Decision Maker." The largest two subjects are pertinently "Arms Control" and "Surprise Attack." (The smallest subject is "Interspecies Deception," which contains titles such as "The Genetics of Altruism," "Natural Deception," and "Misinformation, Fitness, and Selection.")

⁷⁵ A Resolution to Approve Funding for the MX Missile, S.Con.Res. 26, GPO 1983, p.92.

⁷⁶ *Our Nation's Nuclear Warning System*, *supra*, p.72.

credibility of the threat being made. As regards the former, suffice it to say that *effective deterrence depends upon one's opponent accurately understanding the threat being made and operating in a manner of enlightened self-interest*. As regards the latter, a threat is only credible if the opponent perceives the threat-maker to be capable of doing what is threatened and willing to do it under certain circumstances. It is vital that both of these elements be perceived to be present in order to insure credibility of the threat. In sum, effective deterrence is dependent upon the lodging of an adequately severe threat, the opponent's rationality, and the credibility of the threat made, with the latter based upon perceived capability of, and willingness to do, what is threatened.

The U.S. LOWC would not deter without the ^{SUPPOSED (sufficiently likely)} perceptible willingness to use it. The denial of U.S. launch on warning "policy" thus lies not simply in the questionable distinction between "capability" and "policy," but rather in the more questionable distinction between an evident "willingness" and an actual "willfulness" to use the capability.

BLUFF?
(for crisis),
yes; for mtl.,
no.) This difference is nothing in the case of a LOWC, because, *de facto*, the brevity of the launch on warning timeline requires a keen military commitment to prompt retaliation. As Professor of Government George Quester wrote:

[O]ne should note that a "launch-on-warning" policy of retaliation certainly leaves no place for prior Presidential approval, much less Congressional action, if it really involves firing off missiles in response to radar signals of incoming Soviet missiles. Arms controllers may quite rightly condemn any such launch-on-warning policies as unacceptably destabilizing, given the inherent risks of erroneous signals appearing on radar scopes. Yet can one ever be certain that this logic has reached and convinced all the persons that matter on the subject? ... [L]aunch-on-warning may be more a part of U.S. policy than many of us had realized. There is a general shortage of unclassified information on U.S. strategic targeting policies, and launch policies; it is frighteningly possible that such policies do not get properly monitored by Congress or President or public.⁷⁷

NO Because an effective LOWC implies a policy to launch on warning, the truly governing discretionary decision is whether to operate or enable a LOWC. This precursor decision thereafter gives rise to continuous reliance upon military reactions to computer prompts. The military knows this, as General Dougherty explained:

⁷⁷ *First Use, supra*, at 214; emphasis added.

Of course, timely command decisions and directions in this bolt-out-of-the-blue situation demand extensive planning, study, and conditioning by national command authorities, their advisers, and confidants. *Extensive debate and discourse must have been resolved, and basic decisions either to act or not to act made with an eye to a realistic range of circumstances. Indecision and vacillation has no place in such a scenario; decision may not mean success, but indecision will surely ensure defeat.*.. a failure to consider and make basic preparation for a no-warning situation by the NCA would make it far more difficult for the military commands to retain the rapid-reaction "edge" required for timely implementation of quick crisis decisions.⁷⁸

See also the closing argument on subdelegation beginning at p.117 in the Appendix.

The author proposes that the terminological tug-of-war as to whether a launch on warning "policy" exists be settled by flatly applying the definition of "policy" provided in his *Oxford American Dictionary*, which reads "the course or *general* plan of action adopted by a government or party." Thus, a launch on warning *policy* is defined to be any general plan or course of action adopted by the government, including the military, for operating a LOWC. This applies regardless of the type of LOWC operated, of which there are many varieties, including both the declaratory LOWC advertised by government officials, and the LOWC actually operated by the military. It is roughly equivalent to Blair's definition of U.S. launch on warning policy as "that policy that puts the President [or his deputies] in this very stressful position of having to decide what to do in a matter of just a few minutes."⁷⁹ To pin matters down, the author develops a precise vocabulary and conceptual framework.

A taxonomy of LOWCs must recognize three largely consecutive time divisions, namely, the periods of "Tactical Warning," "Decision Time," and "Execution Time."⁸⁰ Of course, these periods are further subdivided, and they might be preceded by a period of *strategic warning*, i.e. intelligence indicating that an attack may be imminent. The period of *tactical warning* includes the assessment of sensor warning data, from the time of missile launch or breakwater up until the confirmation of the attack. It invokes purely *administrative* judgment, since its goal is merely the

⁷⁸ *Managing Nuclear Operations, supra*, p.419; emphasis added.

⁷⁹ Interview, 1987, with Gary Krane, Ideal Communications, Washington D.C. See fn.100 below.

⁸⁰ These are the three divisions listed in the Rand report *Launch Under Attack, supra*.

recognition and relay, or *declaration*, of objective information. Attack warning is now a mission of the U.S. Space Command, although its former U.S. and Canadian organization NORAD survives without this direct function.⁸¹ *Execution time* includes the building, encryption, transmission, reception, decryption, verification, and execution of retaliatory orders in the event of an attack condition being generated, and a response ordered. Launch orders are robotically completed within two minutes, and invoke merely *functional* conduct. That human launch control officers might not respond to launch orders is only a myth.⁸² Between the periods of warning and execution, there may or may not be a period in which the *discretionary* decision as to whether to launch on warning (presuming the sufficiency of the attack warning) is taken. It certainly should not be presumed that the discretionary decision would be to retaliate, but there is a disturbing tendency for the military to do so.⁸³ Given the decision to retaliate, the consequent selection of the particular ("optimal")

ref. is to Washington

⁸¹ Secretary of the Air Force, Office of Public Affairs Fact Sheet 84-27, Jul 1984, states that the commander of Space Command is responsible for "giving warning of ballistic missile attack" and for "furnishing reliable warning of an atmospheric attack" by bombers or cruise missiles. He must provide "timely, reliable, and unambiguous warning," and "an accurate evaluation, including the launching country, size of the strike and potential targets."

⁸² See, e.g., the *Armed Forces Journal* article quoted at p.17 above. See also *Leave War To The Computers*, by Arte Hoppe, *San Francisco Chronicle*, July 16, 1985, for a poignant appeal to the myth. Consider the case of Major Hering, a distinguished air force officer decorated for many dangerous Vietnam missions, who was later assigned Minuteman launch duties. Perturbed, he filed a request for explanations of safeguards regarding his nuclear missile launch orders: how could he be sure the brief electronic order to launch was really from the President? He was refused all information on the grounds it was "beyond his need to know." When he requested reassignment, his less than honorable firing was recommended by an air force panel for "failing to discharge his assignments properly" and "having a defective attitude towards his duties." Despite his long and distinguished record, and despite appeals, the discharge was upheld. See *First Use, supra*, at 72,227; *New York Times*, Jan 13, 1975, p 16; and *Managing Nuclear Operations, supra*, pp.413-4, where General Dougherty justifies the firing, even though Major Hering's concerns were substantiated in the aftermath of the March 30, 1981, assassination attempt which wounded President Reagan. It was then revealed that the Joint Chiefs of Staff, at least, kept a copy of the President's personal nuclear authorization codes, and kept this fact secret from the President. Thus, launch control officers may indeed have received "presidential" launch codes from their military commanders, without presidential authority. Those who fired Major Hering knew he was right to disbelieve their guarantees. The *Washington Post* article quoted at p.114 below reported that the President was "angry" at the concealment, and took unspecified "corrective" action, but none of the commanders were publicly reprimanded, let alone reassigned or fired in disgrace.

⁸³ See, e.g., General Vessey's remark that the "proper response" would be "prompt retaliation" at page 3 above, and General Davis' remark that "the idea is immediate response" at p.47 below. Consider also the exchange:

Sen. Sasser: My concern is this, Mr. Secretary if we put the MX in the

response target set is less important to this analysis, and may even be regarded as the first act of execution.

The following original definitions carefully distinguish shades of automation and delegation. They will bewilder at first reading, which is itself instructive, but their higher purpose becomes clear through subsequent usage.

A mechanical LOWC is defined to be any LOWC that may execute without competent real-time (that is, "live," or "as-events-unfold") human participation in the administrative warning evaluation, and wholly without a discretionary decision, regardless of functional human conduct in executing launch orders. Human participation is deemed *competent* only when it is taken both ably and with legal authority, which respectively impose reasonable standards of soundness and safety, and concomitant constitutional and statutory bounds.⁸⁴ An incompetent human decision is *token* when it is taken unsoundly or unsafely (unably), and *unauthorized* when it is taken by a party without legal authority. In effect, a mechanical LOWC is a machine that may at any time issue launch orders.

A mechanical LOWC is one type of *automatic* LOWC, which is defined to be any LOWC that executes without a competent discretionary launch decision, regardless of whether there is competent human participation in the warning evaluation and launch execution. A *discretionary* LOWC is a LOWC that is not automatic. A *decisive-fail-deadly* LOWC is defined to be any LOWC which under all circumstances provides, and in some circumstances requires, the execution of a

old Minuteman silos, we are moving into a posture where we must launch these MX's on attack, or maybe even on warning, I won't argue the point about that. We move into a posture of using them or losing them. They won't survive the initial detonation.

Sec. Weinberger: There is no President, Senator, who could possibly sit idly in the White House and have some Soviet missiles impact the United States without responding.

(*MX Peacekeeper, supra*, p.30.)

⁸⁴ This is line with the *Oxford American Dictionary*, which defines "competent" as "having the ability or authority to do what is required," except that herein it connotes having the ability *and* authority. "Competent authority" is defined by the Judge Advocate General of the Air Force as "The jurisdiction and legal authority to deal with the particular matter in question." (*OpJAGAF no.85*, Aug 29, 1978.)

physical *override* to prevent a retaliatory launch, given sufficiently credible (actionable) attack warning. A *civilian* LOWC is defined to be any LOWC in which the President or his constitutionally authorized successor must make the retaliatory launch commitment in real-time. A *military* LOWC is defined to be any LOWC in which the military *may* make the retaliatory launch commitment in real-time.

A *predecided* LOWC is defined to be any LOWC configured so as to attempt launch in response to actionable attack warnings. In this important case, there is no proper real-time decision as to whether to respond, even though the responsive target set option might be selected in real-time. Otherwise, a LOWC is said to be *undecided*. Note well that predecided LOWCs may incorporate human participation in the administrative evaluation of an attack warning, and in the functional execution phase. A *tended* LOWC is defined to be a predecided but not mechanical LOWC. A *randomized* LOWC is defined to be a LOWC that is automatic, but which is not predecided. Randomization may be effected by interjecting a token human, and/or a random number generator, to take the real-time decision as to whether to launch on warning.

Though morally repugnant, nuclear randomization is accepted. Both mathematical game theorists and policy makers see bottom-line benefits in uncertainty. Besides preventing the enemy from somehow taking advantage of a certainty, randomization comports with the Machiavellian thesis that upping the risk ante on nuclear war can turn otherwise useless nuclear superiority into a coercive tool in conventional conflict. The pseudo "theory of deterrence" rests on risk. Although the matter had long been mathematically researched at Rand,⁸⁵ Ellsberg is generally given "credit" for first popularizing the theory in a much admired lecture (reprints were published over ten years later) entitled *The Theory and Practice of Blackmail*.⁸⁶ Ellsberg taught the error that every man has his price:

Call it blackmail; call it deterrence; call both coercion: the art of influencing the behavior of others by threats. Nuclear weapons

⁸⁵ See, e.g., *Silent Duels, Specified Accuracies, One Bullet Each*, RAD(L)-301 (1948), and also RM-302 (1948), RM-308-1 (1949).

⁸⁶ RAND, Santa Monica, P-3883, (1959).

no dots!
have one preeminent use in politics: to support threats. How to do this is, of course, the heart of the blackmailer's art. Let us suppose, to begin, that the numbers ... represent money payoffs [these are the "utilities"]. If the victim complies, he gets \$90. If he resists, he may do \$10 better; he can get \$100 if I fail to carry out my threat. On the other hand, he may do \$90 worse; he will get \$0 if I do carry out my threat. "Resist" thus has the character of an "all-or-none" bet. You will resist if you are certain that I won't carry out my threat; but you will comply if you assign more than some critical risk to my carrying out the threat. But blackmailers too can calculate risks - and take them. They too can go to the verge of war; and this has an important bearing on the risks of deterrence... In the next lecture, we shall hear the sound of blackmail; the words that Adolph Hitler spoke, and their echoes, that won him half of Europe before the firing of a shot. There is the artist to study, to learn what can be hoped for, what can be done with the threat of violence.

Ellsberg's eloquence won Rand the contract to draft the SIOP's first so-called limited nuclear options. Ellsberg, citing Hitler, leaped from \$100 versus \$0 stakes to conventional versus nuclear damages, and the United States followed.

In the 1950s, when the United States dominated nuclear weaponry, nuclear blackmail worked.⁸⁷ Euphemistically renamed "escalation dominance," the theory is still no more than the supposition that the nation with the most, biggest, and readiest nuclear bombs gets widest respect. Enlightened by Vietnam, Ellsberg realized the error of his ways and means. Now, in the age of nuclear parity with the Soviet Union, and with knowledge of the global danger of nuclear winter,⁸⁸

⁸⁷ On 19 documented occasions since World War II, the United States has concretely threatened to use nuclear weapons first. See, e.g., *U.S. Strategic Forces: How Would They Be Used?* by Desmond Ball in *International Security*, Winter 1982, at 42-43, and *The Command and Control of Nuclear Forces*, *supra*, at 198-201, 228-229. Prejudiced American literature alleges more frequent nuclear threats from the Soviets, but these boil down to a very few innuendos threatening only *second* use. See, e.g., *Soviet Crisis Prevention And Management: Why And When Do The Soviets Take Risks?* RAND OPS-008, Oct 1986, p.20-1. (V)

⁸⁸ *Nuclear Winter And Its Implications*, SASC hearings, October 2,3, 1985, provides a good overview of nuclear winter theory. It presents calculations leading eminent scientists to conclude:

There is a real danger of the extinction of humanity. A threshold exists at which the climactic catastrophe could be triggered, very roughly around 500-2,000 strategic warheads. A major first-strike may be an act of national suicide, even if no retaliation occurs. (Dr. Sagan, at 195.)

The Secretary of Defense's March 1985 report to Congress *The Potential Effects Of Nuclear War On The Climate*, did not rebut the above conclusion, except insofar as it reiterated the findings of appropriately dubbed the Defense Science Board Task Force on Atmospheric

his theory of coercion is doubly specious, being inapplicable, even as a matter of arithmetical logic, at the distinct nuclear threshold.

In their "Military Posture for Fiscal Year 1988," the Joint Chiefs of Staff axiomatically assume that the United States must possess at least as big a nuclear arsenal as the Soviets. It is arrogantly announced that numerical inferiority would vitiate deterrence, causing the Soviets to dominate escalation at all levels. So set is this perception, that even academics dismiss as "inconceivable" the possibility that the United States would ever own fewer nuclear weapons than the Soviet Union⁸⁹ Yet, the logic of escalation dominance is ludicrous. The game of escalation, once likened to crafty "double or quits," has become most like the inherently irresponsible game of "chicken," in which two cars speed towards each other, and the car that swerves first is deemed the loser. The theory of escalation dominance is as specious as the presumption that the smaller car, with less to lose, will swerve first. Besides, escalation dominance failed in Vietnam.⁹⁰

see
loss of
control

Nevertheless, operations researcher Rapoport's black humor remains the prevailing doctrine. He wrote, with irony:

[Q]uestions of the following kind should always be answerable, if a utility function is to be established: "If, as you say, you would rather be King of Denmark than remain a bachelor and would rather remain a bachelor than see the outbreak of a nuclear war, which would you prefer, to remain a bachelor for certain, or a gamble, where the chances are 99 for you to become King of Denmark vs. 1 for the outbreak of nuclear war?" (*Fights, Games, and Debates*, 1960, at 129.)

This ridicules the weighing of nuclear damage against trivial gain, and the evils of one-man rule, but today's arms control theorists solemnly call the expected gains of risking nuclear war "Rapoport payoffs."⁹¹ Thus the strategist Morrow argues even today that "risk attitudes are a key

Obscuration, quoting their "conclusion":

The uncertainties here range, in our view, all the way between the two extremes, with the possibility that there are no long-term climatic effects no more excluded by what we know now than are the scenarios that predict months of sub-freezing temperatures.

⁸⁹ See, e.g., Professor Hicks article in *International Security*, Fall 1987, at 188.

⁹⁰ See, e.g., *Counsels Of War, supra*, at 209-12.

⁹¹ See, e.g., *A Probability Model Of Credibility*, by Cioffi-Revilla, in *Journal of Conflict Resolution*, Mar 1983, at 76; versus *The Use and Misuse of Game Theory*, in the *Scientific American*, 207(6)

determinant in who prevails and by how much in a crisis, whether or not the crisis escalates into war."⁹²

Common to such analyses is disregard for blatant moral and legal constraints which arise from the disproportionate physical magnitude of the nuclear threat. The Air Force's own nuclear modellers assume a *continuous* "escalation space," without recognizing the qualitative discontinuity that is attributed to the nuclear threshold. This is in contempt of the United States official decalaration that:

1974 In response to speculation that further development of low-yield tactical nuclear weapons would blur the distinction between conventional and nuclear weapons, I wish to state categorically that the U.S. government has no intention whatever to treat such tactical systems as interchangeable with conventional arms. We fully appreciate that the distinction, or "firebreak," between nuclear and non-nuclear arms is a major factor in preventing nuclear warfare, and will not act to erode this distinction.⁹³

The acknowledged discontinuity is not a light matter, for it mathematically invalidates the "Expected Utility Theory of War," from which is derived, in quasi-scientific fashion, the United States nuclear strategies. Underpinning these strategies is the mathematical theory of games definitively set forth by Von Neumann and Morgenstern in the *Theory of Games and Economic Behavior*, 1944. A fundamental axiom restricts applications to continuous utility functions.⁹⁴

1962, by Rapoport. See also fn.107 below.

⁹² *A Continuous Outcome Expected Utility Theory Of War*, *Journal Of Conflict Resolution*, Sep 1985, p.498.

⁹³ U.S. delegate to the Conference of the Committee on Disarmament, May, 1974; see *First Use*, *supra*, at 154. ✓

⁹⁴ See *Matrix Games, Programming, And Mathematical Economics*, Vol I, 1959, by S. Karlin; the Introduction and the "Notes and References" at 1-9,33-35 review the mathematics of game theory, including Von Neumann's founding axioms. Stated syllogistically:

(a) Game-theoretic models, which the Department of Defense actually uses to recommend nuclear escalation and compute preemption and launch on warning target sets, depend for their rigor upon Von Neumann "utilities," which purportedly represent the probabilistically weighted values or damages of various possible warfighting outcomes.

(b) It is arithmetically obvious that expected utilities undergo an order-of-magnitude jump, or discontinuity, at the boundary where conflict with the Soviet Union becomes nuclear, and it is officially recognized that the nuclear threshold represents a *qualitative* expansion of war.

(c) To have proper application, the utilities in a mathematical game must satisfy Von Neumann's "axiom of continuity," which requires

* *Payoff model of SU is very unrealistic; however...*

(and model including)
US D-C is unrealistic;
and K's model of FS...

Regarding randomized launch on warning, Richard Garwin once recommended:

064 The choice most robust against surprise, espionage, and entrapment may well be a statistical -- weighted random -- mixture ... with the weights changing with the strategic situation and the particular state not revealed to the public, to the Soviet Union, or to the military... The role of the NCA is thus simply to endorse the claim of the sensors and the communication systems that a massive attack is under way... The mode of launch as well as the number of missiles to be launched in response to a particular assessment of attack need not be fixed but could be a probabilistic function... the actual decision to respond being generated by a truly random process after the raid has been reported, assessed, and certified.⁹⁵

Without critical comment, the Office of Technology Assessment's widely respected 1981 report *MX Missile Basing* copied this cold logic (p.158):

✓ As a hedge against espionage or revelation of the President's choices, the instructions [for launch on warning] could be arranged to establish only the *probabilities* that certain responses would be made. These probabilities could be made to change on a day-to-day basis according to the world situation. The whole set of responses could be "wired into" the ICBM force.

True, mathematical models deduce that "optimal" nuclear strategies are randomized, but they are derived from the erroneous assumption that nuclear ping-pong can be sportively limited.

The author continues his definitions. A *withheld* or *disabled* LOWC is defined to be any operable LOWC which is not operated. Note that a LOWC is not withheld when it can be immediately "switched on," or *enabled*, for this is logically equivalent to the continuous operation of a LOWC which is not mechanical. A LOWC can be withheld *physically* or *procedurally*, and it can be withheld *congressionally* or *presidentially*. For example, an electronic lock on

commensurate and realistic utilities.

✓ (d) To force models to cross the nuclear threshold and thereby rationalize the United States coercive first-use policy, Defense Department strategists warp utility values by tricks including disregarding deathcounts in a United States counterforce nuclear attack.

(e) Wherefore, the presently programmed nuclear strategies are unscientific to the point of mathematical irrationality (and, incidentally, they violate equal protection by virtue of implicit utilities which do not count human lives equally, in due proportion).

See also fn.150 below.

✓ ⁹⁵ *Launch Under Attack To Redress Minuteman Vulnerability? International Security*, Winter 1979, pp.127,136-137.

Minuteman/MX launches held by the Congress could implement a physical and congressional withhold,⁹⁶ whereas a legal decision requiring public congressional approval before operation of a LOWC would constitute a procedural, congressional withhold. Similarly, a timelock on Minuteman/MX missiles of greater duration than the flight-time of attacking missiles, e.g. 30 minutes, would physically withhold (disable) a LOWC,⁹⁷ whereas mere presidential orders barring a launch on warning would constitute a procedural withhold of a military, albeit not of a civilian, LOWC.

Regarding the warning process, there are: *redundant* LOWCs, wherein the attack condition is generated only when multiple sources give consistent warnings; *probabilistic* LOWCs, where the generated attack condition includes a less-than-100-percent estimate of the probability that the warning is valid; and *conclusory* LOWCs, where the attack assessment may declare that an attack warning is definite;⁹⁸ and *warning-fail-deadly* LOWCs, which are configured so that an attack condition may be affirmed, at least in part, by electronic communications *failure(s)*.

Finally, a *bluffed* LOWC is a LOWC whose character is misrepresented by responsible government officials.⁹⁹ Examples would be: a disabled LOWC represented as enabled, or vice-

No. I don't expect, expect first, are real LOWCs, probably to be bluff?

⁹⁶ The so-called "Permissive Action Link" (PAL) is an electronic lock now installed on some nuclear warheads, which can only be released upon entry of a changed-daily set of enabling codes held by military commanders and by the President. It would at the present time constitute a presidential, physical withhold, if the President alone possessed the codes. But this is not the case, and the PAL's *de facto* function is instead to physically withhold launch from field commanders, in peacetime. Experts think it most likely that PAL codes would be released to field commanders early in a crisis, and so it is questionable whether the devices offer any protection in a crisis. See, e.g., *The Button*, Simon and Schuster, 1985, by Daniel Ford, at 116-121, and *The Command and Control of Nuclear Forces*, Yale University, 1983, at 168-169.

⁹⁷ A more verifiable physical withhold could be effected by strictly separate day-to-day storage of warheads and missiles.

⁹⁸ *Defense Electronics'* 1986 handbook of *Command, Control, Communications, and Intelligence*, states that conclusive attack warning is declared above some statistical significance level, and so is never really definite (p.221):

Template matching, statistical or syntactic pattern recognition techniques are generally used to perform the discrimination using measured features. Hard-decision [conclusory] sensors include a built-in threshold, and report only firm target declarations to the data fusion system. Soft-decision [probabilistic] sensors, on the other hand, report each quantitative estimate -- probabilistic or evidential value -- of target state or identity, whenever a measurement is made.

⁹⁹ Further definitions of interest include the following. A *happenstance* LOWC is defined to be any

revised?

versa; a military LOWC represented as civilian; a tended LOWC represented as undecided; a mechanical LOWC represented as tended. Some bluffed LOWCs include *token* human decisionmaking: a military LOWC represented as civilian could include token procedures for presidential control and civilian succession, while a tended LOWC represented as military could include a token override procedure.

To return to the central analysis, when U.S. officials deny a launch on warning *policy*, they are at most denying the operation of a *predecided* LOWC in normal peacetime. An undecided and civilian peacetime LOWC is actually advertised, and the author knows of no denial that a predecided or even a mechanical LOWC would be enabled in a nuclear alert. This being the case, since a nuclear alert could be triggered by a false warning, two coincidental or correlated false warnings could cause nuclear launch without any external political shock. Upon reflection, it is apparent that a LOWC generally has a small number of "states," geared, for each basic attack scenario, to the few discrete levels of military alert and international tension.

The essential elements of any launch on warning policy, all of which the United States has in trumps, are: (a) a warning system; (b) command and control facilities; (c) nuclear missiles; (d) operating procedures; (e) employment policy; and (f) declaratory policy. (a) *A warning system* includes: sensors and radars, deployed on "platforms," for detecting hostile missiles in-flight; communications links for relaying these detections to a central evaluation facility; computers and computer programs to regulate the flow of warning information, to "fuse" and reduce the data from the various sensors and radars, and to check the validity of a consequent warning; attack

obvious?
(w/ the, reckless?)

set of procedures providing for the notification of command authorities of a tactical warning of missile attack, together with any set of procedures whereby nuclear forces may be committed by the command authorities, which *without special design* happen to execute so rapidly as to give rise to a LOWC. A *programmed* LOWC is defined to be any LOWC that is not happenstance, i.e. that is *particularly* planned for. A *type-A reckless* LOWC is defined to be any LOWC operated in secret, for its effectiveness as a deterrent could not fail to be enhanced by publication. A *type-B reckless* LOWC is any LOWC which has no realistic chance of working in the event of an attack, for this would provide neither remedy in the event of attack, nor credible deterrence thereof. A *type-C reckless* LOWC is any LOWC operated when there is no risk of attack, for then the inevitably positive risk of accidental launch would exceed the necessarily zero reduction in the risk of attack. See the discussion on "risk vectors" in the next section.

warning messages and codes; and user-friendly video displays representing the warning. (b) *Command and control facilities* include: menu-driven response recommendation and selection; communications links for relaying the selected response to launch control officers or otherwise to the missiles; minimum response time launch execution; Emergency Action Messages (launch orders) and codes; computers and computer programs to regulate the flow of command and control information, to assure its integrity, to convert the menu-selected response(s) into time-of-launch and target-coordinate instructions, and to disseminate these instructions to each particular nuclear missile. (c) *Nuclear missiles* for launch on warning are made capable of destroying those computer-recommended targets appropriate to the contingency. (d) *Operating procedures* embrace: warning evaluation; response selection and authorization; response execution; organizational division and coordination; continuous readiness and posture (alert-level) modulation; system change management; system testing; and disaster recovery. (e) *Employment policy* is strategic guidance embracing: credible attack scenarios; preplanned response options; technical specifications, notably including rules of engagement; nuclear exchange models incorporating utility measures, risk estimates (transition probabilities), and decision trees; and "live" (online) situation databases and option tables. (f) *Declaratory policy* includes the formulation and promulgation of announcements designed both to secure funding and to realize the deterrent effect of a LOWC.

Note that the twin declaratory goals would conflict if the public disapproved of the operation of a LOWC, which is more or less the case. The remedy is to quietly ensure the Soviet leadership understands the LOWC's otherwise obfuscated operation. The LOWC is easily funded surreptitiously through a variety of separate programs, since the requisite hardware for warning, communications, command, and control are otherwise justifiable. However, the vulnerable missiles *Scowcroft* are hard to justify without admitting reliance upon a LOWC. Accordingly, the present declaratory policy is that the employment policy is strictly governed by real-time presidential decision. As reported by Ford in *The Button, supra*:

"I'm very familiar with the popular terms 'launch on warning' or 'launch under attack'," he [General Davis] told me. The kind of retaliation the United States would respond with "depends on the magnitude of the attack, and our tactical warning and assessment

system is very good. It can give you the size of that attack and where that attack is coming, and then based on the information, the President and his advisers -- and I'm one of those advisers -- are able to talk to the President, and the President makes the decision. And the idea is immediate response."

However, the authority Bruce Blair has indicated that launch on warning becomes a *de facto* military posture at the first raising of a nuclear missile crew alert.¹⁰⁰ Blair's message is that: "Our strategic posture is on a hair-trigger. Launch-on-warning is not only our capability, but it's our main principal option, one that we rely on too heavily. We need to work hard to remove that hair-trigger."¹⁰¹

On a day-to-day basis, an essentially automatic LOWC, randomized by token decision (with low likelihood of launch being affirmed), is operated by the U.S. Air Force, but a strategic warning activates a much more dangerous tended type of predecided LOWC. The Department of Defense Dictionary of Military and Associated terms defines strategic warning as "a notification that enemy-initiated hostilities may be imminent." This is in contrast to *tactical warning*, defined as "a notification that the enemy has initiated hostilities." Alarming, strategic warning is highly unreliable, computerized, and may be very rapid. Less than a shot is heard around the world in less than a minute.¹⁰²

¹⁰⁰ See *Managing Nuclear Operations*, *supra*, ch.3. Dr. Blair is an ex-Minuteman launch control officer turned policy analyst, who recently wrote the report intended for the Office of Technology Assessment, that was withheld by the Pentagon despite congressional demands for it. See fn.188 below.

¹⁰¹ *San Jose Mercury*, Oct 13, 1986, at B-1, and see also Blair's testimony in *Our Nation's Nuclear Warning System*, *supra*.

¹⁰² A sudden strategic warning resulted when, the day after President Reagan's infamous joke about bombing Russia in five minutes, the Soviets sent a message to their Far East forces translated to: "We now embark on military action against U.S. forces." This message was intercepted, and consequently all United States and Japanese Pacific forces went on a super-alert until the Soviets sent a cancellation order some 20 minutes later. (See the *San Francisco Chronicle*, Oct 3, 1984; and *Nuclear Times*, Dec 1984.) As Bamford reports in *The Puzzle Palace* (1983) pp.246-7:

September 1966 [saw] the creation of the Defense Special Missile and Aeronautics Center [DEFSMAC]... So secret is DEFSMAC that it has never been officially revealed; even within the intelligence community it remains surrounded in mystery. It functions, apparently, as the electronic spy world's early-warning nerve center. "If we start at NSA [National Security Agency]," says Raymond Tate, NSA's former deputy director for COMSEC [COMmunications SECurity], "we have

Even without an alert, and regardless of political rhetoric, *an effective LOWC is assumed in the official assessment of the United States "peacetime capability."* In 1986 testimony, to prove a present Soviet advantage that "only the MX can cure," Air Force Chief of Staff General Welch displayed a chart indicating the expected damage to Soviet nuclear forces that could be inflicted by the United States in response to a Soviet strike. The chart presumed that Minuteman and MX missiles would be launched before the arrival of Soviet missiles. He explained why the LOWC was necessary: "The definition of high confidence deterrence is that you reach the *damage criteria line*... ? That is determined by the JCS [Joint Chiefs of Staff] in conjunction with advice from DIA [Defense Intelligence Agency] and CIA... If we have in our hands the capability to retaliate with a responsive attack against that target set, then the Soviet decisionmaker knows that he cannot preserve that capability that he intended to preserve."¹⁰³

*and the
worsening of
the
consequence
damage!*

The bottom-line ^{public} rationale for the present LOWC is that the consequent increase in the risk of inadvertent nuclear war with it is less worrisome than would be the risk of a Soviet first-strike or preemption without it. Of course, the likelihood of a Soviet first-strike even without the LOWC is negligible because of the United States naval deterrent, but, as aforesaid, the Air Force is

*but not
of a
prompting/LOW
SU strike,
given US
FS/D-L corp.*

a system like this: the Defense Space and Missile Activity [sic; DEFSMAC], located at NSA, is a combination of the DIA [Defense Intelligence Agency] with its military components and the NSA. It has all the inputs from all the assets, and is a warning activity. They probably have a better feel for any worldwide threat to this country from missiles, aircraft, or overt military activities, better and more timely, at instant fingertip availability, than any group in the United States. Like a physician listening to a heart, DEFSMAC listens to the earth through SIGINT [Signal Intelligence] stethoscope, hoping to detect the first sign an irregular beat. Once such a sign is detected, the word would be passed instantly over DEFSMAC's direct CRITIC circuits to the White House Situation Room, the National Military Command Center at the Pentagon as well as the alternate War Rooms, and, most important, to the spacetrack and early warning analysts at the North American Air Defense Command Headquarters, buried beneath 1450 feet of granite at Colorado's Cheyenne Mountain. This warning can range from a few minutes to as much as a day and may include such valuable intelligence as the type of missile or spacecraft to be launched or its likely trajectory.

See also pp.90, 90 below re strategic warning.

¹⁰³ See SASC, DOD appropriations FY 1987, p.1590.

predisposed to overlook the Navy's nuclear capabilities.

THE INCALCULABLE RISK

*As far as the United States is concerned, it is impossible, it is impossible to accidentally launch a nuclear weapon. Impossible. Just not humanly possible -- or not machine possible -- for an accidental launch. (CINCSAC General Davis, *The Button*, supra, p.119.)*

Mr. Solarz: Could you possibly estimate for us, say, on a scale of 1 to 100, if it is possible to do so, what the probability is that we might accidentally launch a nuclear attack? By accidentally, I mean one that had not been authorized by the President or in his absence his constitutional successor.

Mr. Ikle: The answer to that question, I think, very definitely has to be, no.

Mr. Solarz: Zero?

Mr. Ikle: No, I cannot answer it. Nobody can... It is impossible to give a statistical estimate because you are talking about an event that has never happened, hence, there are no past observations which would give us some statistics. Second -- and this is very important -- you are talking about a possible chain of events that you cannot properly anticipate.

(First Use, supra, p.179.)

*sales?
malign?*

The author accepts that safeguards against the accidental launch of individual nuclear weapons are good, at least in peacetime, although far short of perfect.¹⁰⁴ However, this is a

¹⁰⁴ It gives pause to recall some seemingly close calls:

On January 23, 1961, a B52 bomber carrying two 24 megaton weapons crashed near Goldsboro, North Carolina. One bomb was removed from the wreckage, the other from a field into which it fell without exploding. According to Ralph Lapp, former head of the Nuclear Physics Branch of the Office of Naval Research, five of the six interlocking safety mechanisms on the latter bomb had been triggered by the fall. Thus a single switch prevented the explosion... A 24 megaton weapon detonated at say 11,000 feet has a fireball radius of about two miles, would destroy all standard housing within 12.5 miles, and would ignite all flammable materials within a 34.5 mile radius... (*First Use*, supra, p.199,211.)

The missile crew commander and his deputy said they prevented World War III on Nov. 19, 1980, by stopping the accidental launch of a Titan II missile aimed at the Soviet Union... On Nov. 19, launch crew commander Lt. Henry Winsett, deputy commander Lt. David Mosley and two other crew members were conducting a missile reliability test at silo 532-4. They were simulating a launch, with the missile supposedly deactivated... Mosley said his crew ran a launch verification test three times on Nov. 19 and stopped the test all three times before it was completed. Had the crew completed the test, he

separate issue from the danger of an accidental launch on warning of a large portion of the ICBM force.

Nuclear strategists recognize that it is only a *balancing* of risks that could conceivably justify the operation of a LOWC. A LOWC's *risk vector* is crudely characterized by the following set of six probabilities:

- as seen by who?*
- subj. probs?*
- critical risk*
- P1 = probability of successful launch on warning if attacked
 - P2 = probability of successful launch on warning if attacked, as perceived by Soviets
 - P3 = per year probability of an accidental launch on warning
 - P4 = per year probability of intentional Soviet first-strike with the LOWC
 - P5 = per year probability of intentional Soviet first-strike without a LOWC
 - P6 = the threshold probability of attack sufficient to support a retaliatory decision
- but with the D L cap. that the LOWC exploits, reflects?*
with what confidence? whose bet? whose C.R.?

These interdependent probabilities are, supposedly rationally, dynamically balanced against each other, subject to technological, economic, and political constraints. The risk vector is modulated or controlled by raising the level of alert, or lowering the DEFCON.

There are five basic levels of U.S. military alert, called DEFCON (DEFense readiness CONdition) 1 through 5. DEFCON 5 (code-named "Fade Out") corresponds to normal peacetime, DEFCON 1 ("Cocked-Pistol") to general war. SAC is routinely maintained at DEFCON 4 ("Double Take"). DEFCON 3 ("Round House") is an advanced alert in which war is deemed possible, and DEFCON 2 ("Fast Pace") is a full alert signifying that war is imminent. Because the present LOWC is operated by SAC, only DEFCONs 1 through 4 apply. DEFCON 4 is widely regarded as a joke within the military, even though launch on warning is enabled. But, as Bruce

✓

said, the missile would have been launched. "We came within 15 seconds of starting World War III," he said last year. "If we would have done what they told us, we would have had World War III." Mosely said his crew saw lights appear on the console as if during an actual launch. Winsett then shut the system down, Mosley said. However, the Air Force said the test is supposed to look like a real launch on the control board lights. Gen Bennie Davis, CINCSAC, said last week that "it could not launch" because the warhead had been disconnected and all the firing devices had been removed during the reliability check. "It was like a revolver without a firing pin," Davis said. But Mosley said last year that a maintenance crew had left firing devices on the missile and had opened a valve that lets fuel into the missile engine. (*San Jose Mercury*, Aug. 15, 1983, p.14A.)

Blair indicates, with SAC at DEFCON 3, launch on warning is the *de facto* policy,¹⁰⁵ even though the word "imminent" is officially applied only when DEFCON 2 is reached. In fact, DEFCON 3 is sufficient but not necessary for the alerting of nuclear missile launch crews. For example, the 1979 and 1980 false alerts occurred without a DEFCON change.

As levels of alert are raised, procedures and predispositions come into play which facilitate decisionmaking so that the probability of a successful launch on warning in the event of an attack, P1, is raised. In effect, at higher alert levels a decision to retaliate would be taken on the basis of less information than would be deemed necessary to justify retaliation at lower alert levels, i.e. the threshold P6 is lowered in order to raise P1. Of course, this increases the risk of accidental launch, P3. Most experts recognize: (a) that an effective LOWC implies a positive risk of accident (P1 greater than zero implies that P3 is greater than zero and that P6 is less than 100%); (b) that assuring *any* chance of a successful launch on warning, because of the extraordinary timeline, computerized complexities, and novelty imposed upon the human or mechanical decisionmaker, raises some irreducible risk of a colossal mistake (as P1 is reduced to zero, P3 does not tend to zero, but to some small value above zero); (c) that it is impossible to guarantee a successful launch on warning (P1 is always less than 100%); (d) that trying to guarantee a successful launch on warning guarantees accidental launch (as P1 is raised towards 100%, P3 rises towards 100%); and (e) that the Soviets would know if there was no real possibility of a launch on warning (if P1 were zero, then P2 would be zero). The last truism was succinctly stated in the report of the Scowcroft Commission, *supra*, at 2: "Deterrence is not, and cannot be, bluff."¹⁰⁶

should it be?
NO - W3?
WRONG

Crudely translated, and setting aside, *arguendo*, the perhaps paramount issues of morality,¹⁰⁷ the rationale for the present peacetime LOWC (that the consequent increase in risk of

¹⁰⁵ See *Managing Nuclear Operations, supra*, at 87-88; see also 99-100, where it is noted that no higher level of alerting of ICBM forces is provided for than occurs at DEFCON 3.

¹⁰⁶ As Weinberger testified, "The simple fact of the matter is we know what they have and they know what we have. There is no harm in such a hearing as this is. They are not only here, but they know about it anyway." SASC, DOD Appropriations FY 1985, pt.1 at 59.

¹⁰⁷ In Jan 1988, the author received the following communication from Paul Davis, who has been in charge of the development of the extraordinary Rand Strategy Assessment System (see fn.150 below). His minority opinion nevertheless reflects the prevailing doctrine (*italicized emphasis*

accident is less worrisome than the risk of Soviet attack without it) is the bald opinion that the difference P5-P4 exceeds P3. This is implausible, for the probability of a Soviet bolt out of the blue attack, P5, even without the LOWC, is negligible owing to the United States' naval deterrent. Yet, the dominant military opinion is that the probability of accident, P3, is also negligible in peacetime. This reasoning implicitly accepts that the probability of a successful launch on warning may also be negligible, but hopes that this probability as perceived by the Soviets, P2, may nevertheless not be

added):

[M]ost analysts believe that ultimately there must be decisions by the government, decisions that involve a complex set of value tradeoffs. We as individuals may or may not agree with those decisions, but it is only very seldom that the decisions would be somehow illegitimate. The decisions to develop the atomic bomb, the hydrogen bomb, MIRVs, etc etc were all contentious, but not "immoral." ... Even LUA, which as I've said I think would be poor if depended upon, is not a moral issue. *It is possible in principle to have an extremely good LUA system, one arbitrarily good in its characterization of attack.* Given a context of war and such a hypothetical system, it would not be immoral or obviously stupid for a President to consider LUA... Clearly there would be some level of information during an attack but before nudets [nuclear detonations] that would be sufficient to justify a launch as well as nudets would... There ARE moral issues on which people should stand up, but even LUA is not one of them; it demands serious study and the greatest caution, but it is not a matter of good versus evil.

HA - WRONG!

HA

NO (not nec.)

on what?

to what end?

O.S.?

That there must be political decisions, and that some may be contentious, is not disputed. But Davis misses the point that the primary reason LUA is "immoral" is precisely because it may execute without a competent real-time decision, and because the prior decision to enable a LOWC has not been properly made with the Congress and public adequately informed about it, far less with their required approval; nor are things set up to obtain this approval in the event of a perceived crisis. Davis' supposition that an "arbitrarily good" LOWC is hypothetically attainable is at best academic, for he recognizes that any actual LOWC is error-prone, nor does he cite any technology that could make sensors invulnerable or effective against ever-developing countermeasures, or that could put an arbitrarily large number of sensors into space and infallibly fuse their outputs in real-time, the first and only time they are used. Most shocking is Davis' assertion that "clearly" there is a level of information, i.e. a probability threshold P6 below certitude, at which a launch on warning would be justified. On the contrary, it is clear that anything short of certainty raises major, seemingly overwhelming, legal and moral doubts as to the justification for the launch of the full ICBM force. One wonders what threshold probability of attack (P6 = 50%, 90%, 99%, 99.9%?) Davis thinks would justify detonating vast numbers of nuclear warheads throughout the Soviet Union. Not only would the author consider a valid 99.9% certitude rating insufficient, he also recalls that in the 1960 false alert, when radars mistook the rising moon for a massive missile attack, that warning was rated 99.9% certain. In the light of history, the author considers a "fifty-fifty" rule of thumb, or rather of ignorance, more realistic than purported 99.9% probability models. Namely, in order to ensure about a 50% chance of a successful launch on warning in the event of a real attack (P1=50%), a response must be made at what is really about a 50% certitude threshold.

uncertain
≠ immoral,
but.

yes - but
not certain?

?

* not for a "perfect" LUAC; but for any actual LUAC?

negligible. In any case, the prevailing doctrine pretends that it is possible to intuitively weigh two negligible quantities, P3 and P5-P4, and reach the most substantial conclusion that P1 should be maintained at a non-zero level because P3 is lower than P5-P4. The truth is that nobody really knows what the probability of accident implied by any positive P1 is, but how could it possibly be negligible given the magnitude of the threatened damage, which embraces extinction and so is virtually infinite? Commonsense and history show that the risk of accident is highly significant, and that the supposedly higher probability of a bolt out of the blue Soviet attack is less probable. Thus, the author asserts the irrationality of a peacetime LOWC.

Hayoffs,
consider
U₁₁, U₂₁...

Many in favor of a LOWC agree with this reservation, yet believe that an effective LOWC would be needed in a crisis, which hopefully would not last long enough for an accident to occur. As indicated above, the Air Force is indeed geared to this philosophy, and will dramatically raise the probability of a successful launch on warning, P1, in a nuclear alert. Yet, in crisis circumstances, the argument against a LOWC becomes stronger, not weaker. Not only does the probability of accident, P3, become substantial as a purely technical consequence of wide-opened procedural exposures, but also the circumstances and events associated with an alert and/or crisis greatly multiply the risks of accidental launch.

but -
high prob
of failure
alarm -
crisis?
R.S. explanation,
UA

The superficial rationale underlying a crisis LOWC is that the difference P5-P4 would then clearly exceed P3, but this is a mere presumption that is all but groundless. Because the non-ICBM deterrent becomes stronger in an alert (more submarines on patrol at higher alert levels, bombers dispersed, and so forth), P5 should actually decrease when the alert level rises, assuming the U.S. does not seem to prepare to launch a first-strike, which would invite Soviet preemption.

KEY
ISSUE

Finally, a LOWC's terrifying character does not *per se* deter attack. On the contrary, this appears to be a final factor weighing against a LOWC at all times, for its very operation, which knowingly introduces some risk of accidental launch, indicates at least a tacit willingness to strike first, if not an actual intent or wilfulness to do so. The broadcast tolerance of the risk of accidental launch is a most disturbing advertisement of weakness and irresponsibility, rather than of strength and morality. Paradoxically, the risk of a Soviet strike when a LOWC is operated, P4, may even be

yes -
shows D-C
orientation

no

* This appearance, & reality, is not identical to LOW Cap -
See without that, D-C Cap suggests preemption.
(and is C-1 taking account of SU LOW + D-C, & intervention?)

greater than the risk of a strike without it, P5. Is one gang more or less inclined to start a likely suicidal shootout with a hostile gang when its leaders are threatened by cocked guns, or when they are not so threatened?

well, not clear; "depends"
NO - suppose both gangs have cocked guns; is fight more or less likely to start?

Using mathematical models into which are fed real statistics on crises and false alert rates, some experts have estimated that the probability of accidental launch, P3, is already a few percent per year.¹⁰⁸ If the annual probability were 5% per year, then the chance of accidental launch would be above 50% before the end of the century. However low the annual probability, if it persists then accidental launch is not only perpetually risked, but is eventually certain. Of course, nobody knows exactly what the probability is, but history proves its gravity beyond doubt. In 1960, radars mistook the rising moon for a massive missile attack. In 1979, nuclear bomber and missile crews were alerted, fighters were launched in pursuit of non-existent attacking missiles, and the President's plane reportedly took-off - without the President - all because a war games tape somehow went out as the real thing. In 1980, the President's plane was readied for take-off, the Pacific Command Post actually took off, a hundred nuclear bomber crews scrambled and started

¹⁰⁸ See *Computer System Reliability and Nuclear War*, in *Communications of the ACM*, vol.30 no.2, Feb. 1987; *The Nuclear Time Bomb: Assessing Accidental Nuclear War Dangers Through The Use Of Analytical Models*, Babst and Aldridge (1986), Peace Research Institute, Ontario; and *The Probability Of Accidental Nuclear War: A Graphical Model Of The Ballistic Missile Early Warning System*, by Marsh, M.S. Thesis, U.S. Naval Academy, 1985. (Marsh incidentally concludes that reliance on infra-red satellite sensors alone is required to commit to launch on warning within the flight-time of attacking submarine missiles.) A leading model is founded upon recent procedures and false alert statistics. The model was written by Dr. Crissy, a former computer modeler for the Joint Chiefs of Staff and now Professor of Computing Science at Linfield College, Oregon, OR 97128. It is described in *Accidental Nuclear War: A Risk Assessment*, in *Journal of Peace Research*, vol.23 no.1, 1986, by Wallace, Crissy, and Sennott. The model applies to various attack scenarios, including submarine launched attack on command and control, and it takes into consideration the key times in the decision process identified in the DOD's procedures, notably including the *Evaluation Point*, the *EMP Point*, and the critical *Use Them Or Lose Them Point*. Even assuming a generous 9-minute minimum flight time for submarine launched ballistic missiles reaching Washington, the projected maximum and best-case estimate of the presidential decision time for launching on warning computes to a mere 3.25 minutes. From historic frequencies and durations of crises and false alerts, and by realistically modeling threat assessment procedures, and including provision for "dual phenomenology" (described below), the "probability of encountering a spurious *Use Them Or Lose Them Point*" over a given length of time is crudely estimated. It is approximately assumed that during a crisis implying a nuclear threat, this would result in a launch, but not otherwise. This is ergodically equivalent to a significant, continuous risk.

their engines, and nuclear missile crews were alerted, all because a single 46-cent computer chip occasionally generated the digit "2" instead of the digit "0".¹⁰⁹ Had such an event occurred during the 1960 U.S.-Soviet summit, or Cuban missile crisis, or Yom Kippur war, when the United States nuclear forces were already alerted to DEFCON 2 or 3, or had two such false warnings occurred simultaneously, nuclear missiles might well have been launched in panic.

In a report on these incidents, Senators Hart and Goldwater found a heavy traffic of false alerts, but they magnificently concluded that the incidents had proved the system was safe. In particular, they asserted that the requirement of attack confirmation by two types of sensors, infrared and radar, called "dual phenomenology," reduced the risk of accident to acceptable levels.¹¹⁰ The popular, but outdatedly simplistic, concept of dual phenomenology was well-explained by former Under Secretary of Defense for Research and Engineering William Perry:

The nuclear posture of the two superpowers today is like two people standing about six feet apart, each of whom has a loaded gun at the other's head. Each has his revolver cocked and his finger quivering on the trigger. To add to the problem, each of them is shouting insults at the other... the most realistic risk posed by nuclear weapons is the risk of a nuclear war by accident or by miscalculation... In the summer of 1979, I was awakened by a call from a duty officer at the North American Air Defense Command (NORAD) who told me that the NORAD computers were indicating that 200 missiles were on their way from the Soviet Union to the United States. That incident occurred about four years ago, but I remember it as vividly as if it had happened this

¹⁰⁹ Despite the clear flag provided by registers clocking odd repetitions of the digit "2", it took a recurrence of the problem and some two weeks of intensive investigation to discover the cause. As NORAD's commander testified:

One bit of evidence was that the displays showed anomalies in that there were a lot of '2's -- 20, 200, 220, 2000, 2200, etc... It was a very anomalous indication since it was dominated by a series of 2's. Following the event, my computer analysts worked 40 straight hours, but could not determine the cause of the fault. (General Hartinger, SASC, DOD Appropriations FY 1982, p.4222, and *Failures Of The NORAD Attack Warning System*, House Government Operations Subcommittee hearing, May 1981, at 117.)

After two weeks, the problem recurred, and analysts were then able to trace the erroneous data to a chip in a communications multiplexer, which filled in a missile count field continuously transmitted to multiple command centers. Not only was the design of these messages gravely faulted, but it would seem they were relayed without even standard error checks, a shocking oversight not faulted in the subsequent congressional reports and hearings.

¹¹⁰ *False Alerts In The Nation's Missile Attack Warning System*, Oct. 1980, SASC.

morning... if this event had occurred at a time of political tension, if the human intervening had not been as thoughtful as the officer on duty that night, and if the data had been more ambiguous, it could have led to a missile alert. In short, a coincidence of a number of unlikely events could lead to a missile alert... If [the President] believed that our national security required him to launch our forces based only on a computer alert -- "launch-on-warning" -- a false alert could lead to a nuclear war being triggered accidentally... Unfortunately, many of the actions that would reduce our likelihood of false alarm increase the likelihood that we will fail to launch when we should, and vice-versa. For example, our alerting system today considers that an attack is underway only if two independent sensors have confirmed an attack. Therefore, if the probability of one of them being in error [giving a false alarm] is one in a thousand and the probability of the other being in error also is one in a thousand, then the probability that they will both give a false alarm at the same time -- assuming they are truly independent -- is one in a million... it is sometimes argued that we can improve timeliness of response by getting faster computers and by eliminating the human evaluation phase of calling an alert.¹¹¹

This argument ignores the facts that: such "one in a million" probabilities are faced all day and every day, and are not representative of annual probability accumulations; the volatile complication of Soviet countersystems greatly amplifies the technological risk; and errors from the two types of sensor are certainly *not* independent, for innocent flying objects, such as meteors or accidental and test launches, would register on both, and in any case each is part of a single huge computer net. Besides, one must not forget that a launch on warning retaliation might be mistaken not in the physical detection, but by virtue of misread intentions (and even of originating country), which could be caused, for example, by an unordered launch by one panicked submarine crew in a crisis.

Even as a matter of logic, supposedly dual phenomenology is singularly unsafe. Computers plus computers equals computers. Information from many disparate sources is combined in a necessarily computerized "data fusion" process which introduces a risk of common-mode failure. Problematically, the program which "fuses" the data from diverse sensors is governed by a statistical threshold (roughly corresponding to P6) above which a set of warning indications

¹¹¹ *Next Steps in the Creation of an Accidental Nuclear War Prevention Center*, Center for International Security and Arms Control, Stanford, Oct. 1983.

would be resolved into a "confirmed" declaration of attack. Authors call this the "*president's* threshold for LUA,"¹¹² and presume that the President's decision in the event of attack would be to retaliate. The President surely does not understand, let alone decide, his statistical LUA threshold.

Most disturbingly, to work in realistic attack scenarios, and so to be at all credible, a LOWC must be capable of responding even when some sensors and communication links are out of action, for they are extremely vulnerable.¹¹³ General Herres admitted, "you might lose some information, but the fact of its loss is warning in itself. You get that combined with information you are receiving from other nodes to tell you a lot of what you need to know."¹¹⁴ Similarly, Latham optimistically claimed:

The missile warning center in the NORAD Cheyenne Mountain complex, other command centers and the communications connectivity we use to pass warning data to the National Command Authorities has performed at a rate well above 99 percent. *Single or even multiple outages cannot prevent the system from performing its missions.*¹¹⁵

Of course, after the 1980 false alerts, NORAD admitted problems, but these were soon forgotten by the military. For example, after listing NORAD improvements, in 1982 General Prather testified:

Gen. Prather: [W]e have had 80 million messages go across that

¹¹² See, e.g., *Managing Nuclear Operations*, *supra*, at 629.

¹¹³ As Richard Sale reported (UPI, 24 Jan, 1988; emphasis added):

U.S. intelligence agencies are convinced Soviet laser attacks have damaged supersophisticated U.S. spy satellites deployed to monitor missile and spacecraft launches, administration sources said. These sources said they believe the Soviets fired ground-based lasers to cripple optical equipment attempting to scan launches at Tyuratam, the major Soviet space center, to obtain a variety of sensitive military information. Administration intelligence sources said they fear that other vital U.S. reconnaissance satellites will soon be endangered because six new Soviet laser battle stations are under construction... "*There is no way you can protect the optical sensors on satellites*" from laser attacks, an Air Force official said... Intelligence sources acknowledged that the Pentagon also has trained ground-based lasers on Soviet spacecraft, sometimes in attempts to disrupt their sensors.

¹¹⁴ *Armed Forces Journal*, Jan 1986, at 59.

¹¹⁵ *Our Nation's Nuclear Warning System*, *supra*, at 113,115; emphasis added.

machinery now that we have made the improvements, and we have changed the management structure and there has not been one hiccup. So, I feel comfortable that we are well on the road, and with continued support we will totally eradicate the problem.¹¹⁶

However, it was categorically announced that no substantive improvements had been realized even by late 1985.¹¹⁷

Relatively impartial experts concur there are irreducible limits to the reliability of attack assessment. Indeed, basic detection capability is *worsening* as new and temperamental "Over-The-Horizon Backscatter" radars are being deployed to guard against difficult-to-detect Cruise missile attack from off-coast submarines and bombers, as Soviet submarines are becoming vastly quieter,¹¹⁸ and as laser blinding of warning satellites becomes an ongoing threat. As a consequence, the magnitude of risk may not shrink even as technology improves. Growth in the complexity of the total system, diminishing response times, and hostile countermeasures evolve in parallel with sensor technology.

Detection capability has always been cruder than appears from the academic term "signature analysis," which suggests virtually certain recognition of distinct missile characteristics. Setting aside the well-known vagaries of radar detection, it is important to realize that all infra-red detections have the primary shape of the "hot-body" radiation curve, which is fixed by atmospheric absorption patterns and perturbations rather than by properties of the radiating body. Rocket signatures are hard to differentiate from the atmospheric perturbations that swamp them. To a satellite, an oil fire is a stationary missile. In fact, detection thresholds are necessarily set so low that directly overhead sensors are overwhelmed at high noon. As Blair reports, a missile "produces a so-called 'signature' that's ambiguous enough that people have to use their judgment and decide whether that's a missile or some physical phenomenon."¹¹⁹

¹¹⁶ SASC, DOD Appropriations FY 1983, pt.5 159.

¹¹⁷ This point was stressed in the opening statement of Chairman Jack Brooks, and confirmed in the opening statement of the Comptroller General of the United States, Charles Bowsher, in *Our Nation's Nuclear Warning System, supra*, at pp.1-2,54-55.

¹¹⁸ See HASC, DOD Appropriations FY 1987, pt.1 p.732; pt.3 p. 646, and *Armed Forces Journal*, Apr 1988, at 46-54.

¹¹⁹ Interview, 1987, with Gary Krane, Ideal Communications, Washington D.C.

Location and velocity are the principal indicators causing detections to be classified as attacking missiles. Signatures of rocket booster plumes can be simulated by flare and decoy technologies, and, to frustrate detection, missiles of the same kind may be engineered not to have a characteristic signature, but to have individually varying spectra. The only unhideable is heat. The upshot is that sensors must be programmed with a latitude that identifies missiles broadly rather than precisely. This enlarges the risk of misidentification by an order of magnitude. Of course, "Target tracking and signature analysis are completely computer controlled."¹²⁰ Ashton Carter sums it up:

[C]onflicting sensor data are not an aberration, but the *norm* in the warning system. Current sensor systems are not precise enough or cross-calibrated enough to make it likely they would agree on the assessment. CINCNORAD [the Commander-In-Chief over the missile attack warning system] *expects* different sensors to present somewhat different, and maybe even very different, assessments... More sensors increase the odds of conflicting information. Also, an extra sensor increases the complexity of the data-processing and communications system behind the sensors. When this happens, the chances of a common mode of failure might increase, since there are, so to speak, both more test tapes to run and more technicians to run them. It is also clear that the logic, implicit or explicit, with which CINCNORAD combines sensor outputs is at least as important as the technical characteristics of the warning system.¹²¹

¹²⁰ *Managing Nuclear Operations, supra*, at 292,302.

¹²¹ *Managing Nuclear Operations, supra*, at 630; emphasis in original. The quirky calculations of data fusion's combinatoric logic are illustrated with the simplest example. The stage is set in *Scenario Agent: A Rule-Based Model Of Political Behavior For Use In Strategic Analysis*, RAND N-1781-DNA (1982):

QUALITATIVE CERTAINTY

It has been argued that rules with conjunctive phrases [connected by "and"] in their left hand side contain certainty value equal to the minimum of the certainty values associated with the phrases. For example, if the rule is

if x and y, then z

and x is "certain" and y is "likely," then z is "likely." However, rules with disjunctive phrases [connected by "or"] in the left hand side contain information of value equal to the maximum of the certainty value associated with the phrases. Thus, if x is "certain" and y is "likely," we would infer from

if x or y, then z

that z is certain.

For our illustration, we replace x by the phrase "satellite warning," y by the phrase "radar

To have any chance of working in a realistic attack, sophisticated supervisory logical and numerical algorithms must be programmed into the sensor fusion task. Knowledge of these algorithms could compromise the warning mission, and yet ultra-secrecy precludes effective accountability for the vital programming and connectivity chores.

An artificial intelligence riddle runs: "When is a *not* not a *not*? When it's a *not-not-not*." Computers are crammed with knotted *not-not-nots*, and data fusion combines criss-crossed clusters of them. The potentially catastrophic consequences of quasi-systematically performing "or" operations rather than "and" operations; or of confusing an "and-or" with an "or-and," or an "if-then" with an "if-else," or a "GOTO 1384" with a "GOTO 1128,"¹²² and so forth, in a network of computer systems performing millions of operations per second; must alarm those schooled in the

warning," and *z* by the phrase "attack warning." The promise of dual phenomenology is represented the propositional rule of inference:

if "satellite warning" and "radar warning", then "attack warning"

Prompted by the Rand analysis, it is preferable to assign three possible values to both satellite and radar warning, as follows. The value 0 corresponds to the particular sensor affirmatively reporting no attack, i.e. an attack is "impossible." The value 1 corresponds to a suspicious loss of signal, or other anomalous report, from a particular sensor, which is interpreted as a report that an attack is deemed "likely." The value 2 corresponds to the particular sensor affirmatively reporting an attack, i.e. an attack is "certain." We continuously compute the sum (or product, if we wish) of "satellite warning" and "radar warning," which is an integer ranging from 0 through 4. What should be our rule for generating an actionable attack warning? Dual phenomenology, as publicly understood, would require that both warnings have the value 2, and so an attack would be declared if and only if the sum (or product) was 4. But sensors are highly vulnerable, and so it would in practice raise doubts if *all* warning systems appeared to function properly. For this reason, we may be inclined to *reject* a "perfect" warning, that is, one which scores 4. On the other hand, it is not infrequent that both types of sensor break down, and so we reasonably require at least one affirmative warning and a nonaffirmative warning to confirm an attack warning. This translates into a rule that generates an attack warning when the sum of the two warning values is 3. By such reasoning, dual phenomenology becomes logically less than dual, even though two terms are indeed combined, and even though the sources of warning are not "ambiguous," since loss of signal is taken to be confirmatory rather than conflicting evidence of attack in progress. Reliance upon a single sum erodes duality. The reality is far more complex, yet this example serves to show how an attack warning is generated by reducing all sensor inputs to a few numbers, and testing to see if the result is in a predefined range.

¹²² 1384 and 1128 are a mere flip-flop apart in computer storage: since they differ by 256, which is a power of 2, they differ by one bit in their binary representations. However, the numbers are not very closely related from the human perspective. Contrariwise, 3334 and 3444 are rather related from the human point of view, but they are not especially similar in binary code. (The lawsuit described below, case no. C-86-3334, was mixed-up with case no. C-86-3444 by the district court filing clerk, which resulted in the mistaken filing of a substitution of attorney, and in consequent mistaken serving of key documents on the incorrectly substituted attorney, rather than on the proper party.)

delicate art of applying blunt language to the resolution of organic human conflict.

Perceptual differences characterize the difficulty of implementing safe man-machine interfaces. An example is provided by the failure of a first much-publicized Star Wars test, which also illustrates software problems that only operational testing can purge. (Launch on warning can never be operationally tested end-to-end; unless the Soviets cooperatively send over a dummy attack for practice.) As the Space Shuttle overflew Hawaii, it was to reflect a laser beam back to earth. Unfortunately, the Shuttle overflew Hawaii upside-down, with the mirror pointing away from the earth. This happened because the flight computer was programmed to fly so that the mirror was oriented with respect to the top of a mountain in Hawaii, the height of which was fed into the computer in feet. But the Shuttle's flight computer treated the data as though expressed in nautical miles, and consequently "thought" the top of the mountain was way above the Shuttle, in space. Intelligently, but without commonsense, the flight computer inverted the Shuttle so that the mirror pointed towards the phantom mountain top.¹²³ The Shuttle also had problems due to spurious signals causing the accidental activation of hardware systems.¹²⁴

¹²³ Consider also the heralded first performance of a prototype Autonomous Land Vehicle (ALV). The ALV is a major project in the Strategic Computing Program, and comprises a robot tank supposedly capable of recognizing and engaging the enemy in battle, and even of burying the dead. As recounted in the *San Jose Mercury*, Nov 23, 1986 (News West Magazine):

In July, Martin Marietta held a Press Day so the media could watch the ALV bustle around the track at 3 to 6 miles an hour. Unfortunately, halfway into its perambulation the ALV got a little disoriented and headed straight off the road. Researchers working with the ALV say it may have gone off the track because it mistook a shadow for the edge of the road... But DARPA's directors believe it was the weather... because "it was very warm that day," causing one of the automatic processing units to overheat and send "spurious signals" into the computer. "When the ALV malfunctions," concedes DARPA's Strategic Computing Initiative director, Clinton W. Kelly III, "it is likely to do anything."... A precursor ALV was programmed to think "road" when it saw two parallel straight lines. Shortly thereafter, it spotted a tall straight tree and tried to drive up the trunk... The space Shuttle ground processing system underwent 2,177 hours of simulation testing and 280 hours of actual use before the third Shuttle mission. Even so, 130 bugs surfaced during the mission. Even small bugs can have big consequences. The Mariner probe to Venus was destroyed because in the software a comma was mistyped as a period.

¹²⁴ *Aviation Week & Space Technology*, Nov 15, 1982.

Officially: "Reliable surveillance systems must provide timely, *unambiguous* warning of attacking missiles;"¹²⁵ and "The integrated ballistic missile tactical warning and attack assessment system provides accurate, timely, and *unambiguous* warning and assessment information to support force survivability and national decisionmaking."¹²⁶ The comforting standard of safety seemingly implied by the requirement of "unambiguous" warning is very misleading. *Disambiguation* is a programmed data fusion function defined as "Selecting from alternative interpretations the one most appropriate in the given context... One approach is to use general heuristics for transforming incorrect expressions into well-formed ones."¹²⁷ A "heuristic" is a "rule of thumb," in this context digitized. The disambiguation concept is especially applied to sensor fusion, e.g.:

As new technology is introduced to the battlefield, the critical response times required for decisions are growing shorter at all levels of the command hierarchy. Communications devices and control hardware are constantly being improved to meet this demand, but the human elements of the system are unable to change their timing characteristics... The confluence of increasing data flow rates from advanced sensors, the growing need for speed, and the necessity for flexibility calls for increasing levels of automation of this facility. Computers must take on tasks which were originally done by humans... Among the potential applications of knowledge engineering ... is the use of expert systems to assist decisionmakers... Sensor fusion involves correlating, merging, and interpreting the inputs from distributed sensors in the field. Network management systems would be electronic agents, charged with the responsibility of managing the C³ resources in response to varying load, shifting priorities, and possible hostile interference. A wide variety of sensors may be used in the identification and *disambiguation*... Combination of sensors may be employed to yield information not available from any single source... Intelligent systems could process the raw data, using knowledge about how the information is best utilized, and present refined conclusions to the human components of the system... The fusion application is sensitive to countermeasures based on deception and would profit from further theoretical work on decisionmaking in uncertain, and in fact, hostile circumstances. The penalty for errors by a sensor fusion system increases with the level of conclusion drawn... Of particular concern is that the compromise of such software would allow the enemy to design countermeasures tailored for its specific fusion heuristics.¹²⁸

¹²⁵ Senate Armed Services Committee, DOD Appropriations FY 1987, at 469.

¹²⁶ HASC, DOD Appropriations FY 1987, pt.3, at 649.

¹²⁷ *Machine-Aided Heuristic Programming: A Paradigm For Knowledge Engineering*, RAND N-1007-NSF (1979), at vi,34.

Disambiguation is but one of many "neatening-up" operations needed to reduce a trillion bits of data to a few user-friendly screens, which are in turn reduced by SPACECOM's commander to one of three ratings when he generates a warning: low, medium, or high confidence. Present procedures recognize and tolerate that a launch on warning decision will be based on a degree of confidence less than "unequivocal."

Establishment experts often express the belief that acceptably reliable super-prompt warning of a massive missile attack can be adequately assured with modern technology. For example, General Abrahamson recently testified: "If on the other hand it is a thousand ballistic missiles rising out of the Soviet Union, the President doesn't need to ask anybody, and so long as you have confidence that that's your real signal [deleted]."¹²⁹ Unfortunately, Blair has explained that "though classified... the threshold -- the number of missiles detected -- for triggering our all out retaliatory force is very low indeed."¹³⁰ In any case, previous false alerts have reported massive attacks, and, even were reliability theoretically attainable, that is a far cry from its realization.

At an April 4, 1984, press conference, Secretary of Defense Weinberger asserted that Star Wars system was technically feasible, claiming that American technology could produce "miracles." As proof, he cited the Space Shuttle. But even where launch decisions are made publicly, after extensive operational testing, and in a well-understood, benign, and largely controllable environment, under merely political and relatively generous time pressures, the decisional process itself can go awry regardless of the theoretical feasibility of assured success. This happened with the tragic Space Shuttle launch on January 28, 1986. Clearly, it had been possible to design a booster with a joint that could cope with a touch of frost, and to desist from launch in conditions that were known to give rise to risk. Mundane economic and political pressures respectively outweighed each

¹²⁸ *Future Military Applications For Knowledge Engineering*, RAND N-2102-1-AF (1985), pp.28-31.

¹²⁹ HASC, DOD Appropriations FY 1987, p.606.

¹³⁰ Interview, 1987, with Gary Krane, Ideal Communications, Washington D.C. In the same interview Blair described the above rating of attack warnings as having low, medium, or high confidence.

of these simple safeguards.

The hi-tech operation of the Space Shuttle and of missile attack warning are naturally associated in the military mind. *Defense Electronics* published a 1986 handbook of *Command, Control, Communications, and Intelligence*, which drew the ominous parallel:

But as military use of space became more and more common, it was decided to "normalize" Air Force operations in space -- just as the dramatic, high-profile missions of NASA's Apollo program eventually evolved into the business-as-usual routine of operating the space shuttle. Space Command, which is made up of the First and Second Space Wings ... will manage most of the assets that NORAD uses for its surveillance and warning missions.

In retrospect, the comparison leads to a different conclusion:

[T]he destruction of the *Challenger* in 1986 illustrates the tendency for technical communities to develop a collective wisdom that with the passage of time ceases to be questioned. *Experience with even the most reliable launch systems showed that an accident was likely sometime in the life of the Shuttle program. Yet to keep alive within NASA a recognition of likely failure proved impossible.* In fact, the opposite seems to have occurred: an unwarranted self-confidence developed that, by relaxing vigilance, probably hastened tragedy. (*Managing Nuclear Operations, supra*, at 625; emphasis added.)

Besides, what risk of Armageddon could ever be acceptable, let alone in peacetime? As it is, the risk is *growing* in parallel with the multiplication, computerization, and interconnection of nuclear arsenals. To those who confidently point out that there has been no accidental launch to this day, I reply that we are building a tower of pennies, which has already wobbled.¹³¹ *Present*

¹³¹ The "40 years of peace" argument is pervasively applied by the administration. For example, despite recognizing the possibility of extinction through nuclear winter, Weinberger refused even to review nuclear employment policies and options on the sole ground that they had proved their efficacy by deterring nuclear war for 40 years. This tempting fallacy was outlawed by Thomas Paine in 1776:

I have heard it asserted by some, that as America has flourished under her former connection with Great Britain, the same connection is necessary towards her future happiness, and will always have the same effect. Nothing can be more fallacious than this kind of argument. One might as well say a child is never to [grow up]. But even this is admitting more than is true; for I answer roundly that America would have thrived as much, and probably much more, had no European power taken any notice of her. But Great Britain has protected us, say some. That she hath taken our taxes and engrossed us is true. Alas, we have been long led away by ancient prejudices and made large sacrifices to superstition. Even brutes do not devour their young, nor

launch on warning drills are dangerously brief, as ice can be dangerously thin. The time is shortening, and the complexity of the decision is growing: the ice is melting away, as the burden on it increases.

East Europe? Third world instability and nuclear proliferation promise a series of sudden crises.¹³²

Nuclear proliferation was a compelling reason why the United States should cease and desist from launch on warning, asserted Dr. Herbert York in 1976 hearings. See *First Use, supra*, at 60. Even assuming *arguendo* that the United States possesses the technology to make launch on warning safe, that presumption certainly does not hold for other and smaller countries. Unfortunately, the pressure to rely on a LOWC is vastly greater for vulnerable smaller countries. Accordingly, it is of

savages make war upon their families. Our duty to mankind at large, as well as to ourselves, instructs us to renounce the alliance. O ye that love mankind stand forth!

see DC-10 crash
More recently, in 1968, the risk of attack in the illegal spying mission of the American ship *Pueblo* was rated as "minimal" by American officials "based upon 150 years of never having happen" any attack off the coast of North Korea. Accordingly, despite formal warnings based on current assessments, the *Pueblo's* fatal spy mission was authorized by the Joint Chiefs of Staff. (*The Puzzle Palace, supra*, at 297-300.)

¹³² As Senator Nunn recently cautioned (interview with *Ideal Communications*, Washington, D.C., 1987):

will?
The United States has sold F-4 aircrafts all over the world, including the Middle East. Let's assume there was one U.S. aircraft, an F-4, for instance, was painted with false U.S. markings on the wings, flew low over the Soviet Union from the Middle East. The Soviets looking at it thought it was a U.S. aircraft, it dropped one nuclear weapon. What would the Soviets do?... What would we do if this terrorist group found a way to develop a nuclear weapon and pulled up in the San Francisco harbor in a merchant ship, got off the ship... four or five hours later San Francisco or Boston or some other great American city goes up in a nuclear explosion?... perverse as it sounds, if the Soviets get to the point at which they believe their total force is vulnerable, the world is not safer then. The world is on more of a hair trigger, and then we begin depending not simply on our technology and our warning system, but on the accuracy of theirs. Do we want the Soviets sitting there believing that if they don't launch at the first sign of an American attack, even if it's geese flying the wrong way that come through on a malfunction on their machines, that we want to be in a situation where we depend on Soviet technology -- a country that has trouble getting elevators to work sometimes -- to have that technology be the crux on which we depend for survival? And the answer is no... In terms of our ability to avoid a nuclear war by accident, I think we work at it very hard, I think we're the best in the world, we're much better than the Soviets, but we have a mutual interest in both sides being able to do this.

by arrow to Zollock

momentous importance that the United States set an example of responsibility by renouncing launch on warning. The present bad example of unnecessary reliance on a LOWC by the United States obviously encourages other countries to implement their own less unnecessary nuclear hair-triggers.

Furthermore, the risks attendant to the nuclear hair-trigger are wildly amplified by the interlocking of the alerting programs of the United States and the Soviet Union. Consider also the danger of nuclear escalation implied by so-called conventional rules of engagement. An example is the present policy of destroying enemy (nuclear submarines the moment conventional hostilities commence.¹³³ In the Cuban missile crisis, the strongest action taken by the United States was the positioning of destroyers directly over Soviet nuclear submarines, even though this action ran counter to the orders of Secretary of Defense Robert McNamara, that all vessels form a linear blockade.¹³⁴ In any case, no instance of escalation is isolated, either horizontally or vertically. For example, re submarine warfare, note that nuclear missiles can be launched without an enabling

¹³³ This policy was confirmed in 1986 testimony:

Sen. Nunn: Recently, the Chief of Naval Operations, Admiral Watkins, wrote in an article that U.S. Navy submarines will attack Soviet ballistic missile submarines in a conventional war even if that war has not crossed the nuclear threshold... Is that part of our overall U.S. defense strategy?

Sec. Weinberger: We have discussed matters of this kind many times, Senator. We do believe that it is important in a beginning phase of a war, first of all, to do everything you can to keep it conventional, and, second, to terminate it as quickly as possible on terms favorable to ourselves, which means we must win it.

Sen. Nunn: Does that mean it is part of our strategy?

Sec. Weinberger: Yes. I think that it is a vital part, that we should try to eliminate the Soviet means of warfare as quickly as possible... One of the ultimates you have to bear in mind is that the Soviets know we have this capability. It adds to the discouragement to them to start it.

Sen. Nunn: I wanted to make sure that was clear and that was officially part of our strategy. Admiral Crowe, was that matter discussed with the Joint Chiefs before that was issued publicly?

Adm. Crowe: If it was, it was done before I came here, Senator. But it has always been my understanding that it was. We anticipate, of course, they will do the same to us, they will attack our missile submarines.

¹³⁴ McNamara's ignorance of this rationale caused an explosive personal confrontation described in *Essence Of Decision: Explaining The Cuban Missile Crisis*, by G. Allison, 1971.

code from external authority,¹³⁵ and "It will be U.S. policy that a nuclear war beginning with Soviet nuclear attacks at sea will not necessarily remain limited to the sea."¹³⁶

It is generally recognized that raising nuclear alert levels is *per se* dangerous escalation.¹³⁷ Nuclear command and control programs drive dynamically chained computerized routines, procedural drills, and military postures. Defenses react to perceived enemy threats by locally and globally incrementing alert levels. Retaliatory programs reflexively initiate as alert levels rise. This is instantly picked-up by enemy signal intelligence, which causes a reactive raising of alert levels. The responses are perceived as fresh threats by the originally alerted superpower. They not only confirm the initial warnings, but are wont to trigger further and more urgent countermeasures. Command and control expert John Steinbruner warns that this process is inherently uncontrollable:

[C]hanges in the balance of control during crisis occur not only as a deliberate act of policy but also as a result of spontaneous reactions throughout the entire organization of deployed forces. The operational details that affect the disposition of positive and negative control [of nuclear weapons] are too extensive, too diverse, and too affected by the immediate circumstances facing individual weapons commanders to be completely determined or even predicted.¹³⁸

It is hard to disagree. After the 1980 false alerts, Assistant Secretary of Defense Ross was asked whether the danger of a series of escalating counter-responses was real. He replied, "I'm going to duck that question."¹³⁹

The thesis of expert Paul Bracken's *The Command and Control of Nuclear Forces* (1983) is that there is a danger that a few coincidental, minor, and possibly mistaken^{*} appearances of conflict will escalate into full scale nuclear war, and that this danger is rapidly worsening thanks to

¹³⁵ See, e.g., *First Use*, *supra*, pp.41,55,57.

¹³⁶ *Defense Guidance FY 1984-88*, leaked in the *Washington Post*, May 25, 1982, p.1.

¹³⁷ See, e.g., *Assessing The Capabilities Of Strategic Nuclear Forces: The Limits Of Current Methods*, (1980) RAND N-1441-NA, 1980, at 85-88, and especially *Escalation Space And Assumptions About Enemy Motivations: Elements In Warning Assessments*, RAND N-1269-AF, 1980, at 5.

¹³⁸ *Managing Nuclear Operations*, *supra*, at 541.

¹³⁹ *New York Times*, June 6, 1980, p.14.

assumption based on
mistaken suspicion
incentives and
unfounded
apprehensions

not nec. unfounded, ill-founded, ill-founded,
unfounded

What if down of function - by mil (presumably) even if Pres is reluctant. From 0 to 0.7 Or does this have no effect?
(a friendly card - like ~~presenting~~ ~~from~~ ignoring nuclear Pres doesn't

the phenomenal pace of computerization within the militaries. He draws an analogy with the start of the First World War, showing how a single assassin's bullet precipitated a chain of uncontrollable escalatory events that within days led to world-wide war owing to the rules of alliance and engagement then *de facto* dictating international reactions. Bracken's expert opinion is that the rules programmed into the computers and procedures controlling nuclear weapons may *de facto* cause and contribute to a reinforcing sequence of escalatory countermeasures culminating in accidental nuclear war. He cautions:

If the Soviet Union seemed to be going on alert, this would be a shock that would trigger hundreds of preprogrammed American responses. For today's mature nuclear forces, a declaration of alert above some level reinforces the need to go on still higher alert.¹⁴⁰

Understandably, Steinbruner is adamant that "a complete, simultaneous alert of U.S. and Soviet strategic forces under circumstances of political crisis must be prevented."¹⁴¹ However, lower-echelon military commanders have the authority to put their forces on whatever state of alert they think appropriate. As Blair reports:

Decisions... are made at the lowest possible level in order to expedite the issuance of instructions and limit the number of actions referred to the [highest levels] for decision." [Joint Chief Staffs guidance.] Most time-sensitive operational aspects of the emergency are managed by the JCS Director for Operations, who reports to the JCS Joint Staff, who report to the JCS, who report to the national command authorities... Alert authority resides at even lower levels. Regardless of the alert level that a commander is directed to adopt, the commander is ultimately accountable for the safety of his troops [and materiel, including ICBMs] and must judge whether additional alert measures are necessary or "prudential." Thus, a DEFCON [general alerting] order is widely construed as instruction on what steps to take at a minimum. [Citation.] Additional steps could be ordered by a combatant commander through his own alerting structure which would not affect the status of units outside his chain of command. For instance, the SAC Commander has the authority to launch the bomber force into the air in order to prevent its destruction by Soviet missiles. The senior duty controller in the SAC command post has the authority to order the bomber crews to scramble to their planes and start their engines. The protective launch of the crucial airborne command posts in SAC as well as in other

¹⁴⁰ *The Command and Control of Nuclear Weapons*, 1983.

¹⁴¹ *Nuclear Decapitation*, in *Foreign Policy*, No. 45, 1981, at 28.

commands can be flushed on the authority of relatively junior commanders. Considerable discretionary authority to implement alert measures extends down to the lowest echelon in the chain of nuclear command. In certain circumstances, the individual weapon commanders have the independent authority to take steps normally not taken until the formal declaration of the highest level of defense condition. Other features of the U.S. alerting structure work to dilute central control over nuclear force operations... decentralized activity would aggregate to a point where it ... leads to inadvertent conflict. We usually think of nuclear crises in terms of escalating mutual suspicions between two adversaries... This problem is exacerbated by the nuclear strategy that both sides have adopted to compensate for vulnerabilities in their respective command systems. Both sides are very sensitive to these vulnerabilities. Both have a low confidence in their ability to absorb an attack before retaliating. And hence both sides have a de facto strategy of launch on warning. This is considered their principal strategic option, and at least the United States is operationally geared for this option. Therein lies a real danger of accidental nuclear war... On the face of it, too much has to happen too quickly for anyone to believe that there is not a significant risk of someone making a mistake that aggravates if not triggers a nuclear conflict. The stress is acute within the tactical warning system of the North American Air Defense Command.¹⁴²

is present by
D-L.
lead for determining.

enough to
deter?
or just, "do's"
what seems
prudent, necessary.

Little comfort can be drawn from reassurances that danger of accident exists only in a crisis. For example:

and would seem so
to most observers,
except in the light
perhaps
of consequences.

[N]either policy makers nor analysts can agree, among themselves or between each other, on what it is that constitutes a crisis. Decision makers in international affairs tend to consider almost any incident which may even only marginally increase tension in East-West relations a crisis or confrontation... The reason for this state of affairs may be similar for practitioners and analysts. History books will not contain many entries for the statesman who simply presides over "business as usual".¹⁴³

Volatility is inevitable for ever-ready deterrent forces configured to be generally unleashed should they in part be destroyed. With hostile military organizations preprogrammed to execute at electronic speed the tit-for-tat ^{revenge} illogic of the arms race, the prohibition of launch on warning is vital to provide a signal and a firebreak between feedback and finis.

In a tense world, the momentous enabling of a LOWC might become the monstrous

¹⁴² Managing Nuclear Operations, supra, pp.75 ff.
¹⁴³ Soviet Crisis Prevention And Management: Why And When Do The Soviets Take Risks? RAND OPS-008, Oct 1986, p.3.

* Was it a "mistake" for Israel to kidnap Shleim Obaid? "We considered all the possible consequences." If it was a mistake, it was the kind the Best & Brightest make, a reflection; it can't be avoided with 100%.

? black crow "that frightened both our heroes so, they quite forgot their quarrel."¹⁴⁴ Now taken for granted, launch on warning approaches electronic deterrence. Electronic deterrence is a seductively cheap doomsday machine that fatally blurs and bridges the nuclear threshold. Nevertheless, a recent Air Force study, entitled *Pursuit 2000, Electronics: The Key to Deterrence*, enthuses that by the late 1990s deterrence "will be the function of advanced electronic systems."

¹⁴⁴ *Alice in Wonderland*, by Lewis Carroll; Tweedledum and Tweedledee.

BYPASSED CONSTITUTIONAL SAFEGUARDS

*Senior military officers are reluctant to talk about their ability to veto or dispense with Presidential orders... "In my view, an irrelevant question," General Davis replied when I brought up the subject. ... "The constitutional problems are severe and not faced up to," one senior military officer said. (1985 interviews reported by Daniel Ford in *The Buuton*, supra.)*

True | That launch on warning is with us broadly indicts the political processes that gave rise to it. Not even the languishing no-first-use-by-one-decisionmaker proposal of the Federation of American Scientists (see fn.153 below) challenges launch on warning. In 1985, the most influential think-tank on preventing nuclear war, a group mentored by Senators Nunn and Warner, recommended more sensors, and more computers, as the only *pragmatic* means to reduce the risk of accidental launch posed by the present LOWC. Without pause, Senator Nunn simply announces the hair trigger to be "inexorably" worsening.¹⁴⁵ Inexplicably, the group does not countenance the

¹⁴⁵ As Nunn stated in a 1987 interview (*Ideal Communications*, Washington, D.C.):

analyze who
A. In terms of the hair-trigger, both sides are moving inexorably towards more vulnerability. As one side gets more weapons, the other side's ability to absorb a first strike diminishes. So if we get more accurate weapons, the Soviets have most of their weapons on land, in silos, big silos, their vulnerability goes up. As their vulnerability goes up, they get more and more a watch on attack, or launch on warning. The same thing happens here... And that means naturally to the military we've got to be ready quicker. We've got to make a decision quicker. We've got to launch quicker... if we believe we are under attack, before we are absolutely certain of that, we may very well launch ourselves, because if we don't, we're in a situation where we lose a lot of our deterrent. That is a very dangerous situation.

on O-2 cop.
Q. In a crisis, would our nuclear hair trigger create a risk of accidental nuclear war?

It is the supposed utility of the MX that tempts us to launch it early.
A. We should have a policy that does not require us to launch on warning. We should have the survivability with our forces to not have to launch till we know we have been attacked. And that's a key to developing survivable forces. That means emphasis on submarines, it means emphasis on mobile missiles that are single warhead missiles -- this is the direction we ought to be moving in, away from the MIRVing, away from the fixed land-based system. This has been the subject of considerable debate.

The matter has indeed been debated for decades, with the same platitudinous counsel that abhors launch on warning, that promises forces that do not require it for survivability, that thus makes impotent criticism of launch on warning, and that for decades has not fulfilled its promises. All the time, the possibility of simply renouncing launch on warning is basically

How much more dangerous is it to launch with not certain - the who enters - or, who we have been attacked? - if survivable, still seems to tempt (OS) but less need for LOWC. - no fear of loss of CF - which - though targets are big "lost"

obvious expedient of removing the source of the risk. Its conclusory remedy lies in further error-proofing the warning technology, primarily by proliferation of sensors. The horrifying hope is to reduce the time for attack *confirmation* by sensors down to as little as two minutes, thus providing a couple of minutes more so as to *confidently* take the discretionary launch on warning decision!

Even though a majority of the Nunn-Warner group's controlling committee helped design and implement the present launch on warning posture,¹⁴⁶ it is astonishing that this group of

wf? ignored.

¹⁴⁶ This controlling committee comprises: former Secretary of Defense and ex-Rand strategist Schlesinger; President Ford's National Security Advisor Lt.-Gen. Scowcroft; Richard Ellis, United States Commissioner on the U.S.-U.S.S.R. Standing Consultative Commission; Bobby Inman, former Deputy Director of Central Intelligence; William Hyland, formerly Deputy National Security Advisor; William Perry, formerly Under Secretary of Defense for Research and Engineering; Don Rice, Rand's President; and Barry Bleecham, senior fellow at the Center for Strategic and International Studies. Under the guise of non-profit events such as an "Aerospace Educational Foundation Roundtable" in Washington held April 22, 1987, such prestigious cliques announce the ICBM articles of faith without mentioning "launch on warning" or "launch under attack." The incantation of the humble term "survivability" mystically sanctifies the policy of "prompt response," i.e. launch on warning. This particular panel comprised Senator Gore, General Welch, Lt.-General Scowcroft, and William Perry, chaired by Rand consultant Dr. Kanter. The debate was written-up in a 40-page series of articles on SAC's mission in *Air Force Magazine*, Jul. 1987. Here is an excerpt. First, it is recalled how adamantly and far apart General Scowcroft once set the "capability" and "policy" of launch on warning, the latter implying "survivability" (see p.34 above). Here, Scowcroft seems to take the opposite view:

"I don't think we ought to set capability and survivability so far apart," General Scowcroft said. "Capability goes to deterring the Soviets from the kind of risk-taking in crisis they might otherwise be tempted to engage in. The survivability aspect deters them from any notion of a surprise attack, which could give them a significant military advantage. So I think capability and survivability go to different points, and they're both very necessary." General Scowcroft said that a fundamental feature his Commission sought in the ICBM was "a different failure mode from any of the other legs of the triad." The weakness of the bomber force, he said, is that it is subject to surprise attack, so that is a kind of vulnerability to be avoided with missile forces. He acknowledges the remoteness of danger from "a bolt out of the blue" surprise attack, but added that "you can make it either more or less likely, depending on what your preparations are... one of the frustrating aspects of our ICBM force has been that you can't demonstrate resolve. You put them on alert, and nobody sees anything."

Scowcroft's frustration seems feigned. It is perfectly possible to devise operating procedures so that missiles could be normally off alert, and visibly alerted, e.g. by storing warheads separately from missiles. Instead, Scowcroft, the Nunn-Warner group, and so on, themselves *choose* to hold missiles on continuous alert, in launch on warning posture. Indeed, the assertion that vulnerability to surprise attack is "avoided with missile forces" promises launch on warning,

reputed experts without dissent laud the hair-trigger as *obviously risk-reducing* owing to the deterrent value of what it calls "unambiguous" readiness.¹⁴⁷ This is like arguing that driving as fast as possible is safest because the time spent on the road is thereby minimized. On this absurdity the entire matter of launch on warning rests, as though settled. Yet, it is manifest to most of the endangered earth that the nuclear hair-trigger poses a direct risk of inadvertent extinction that cannot and must not be so casually and arrogantly glossed over. *Even without a LOWC*, the United Nations has ruled simple possession of a nuclear bomb in violation of international law due to the danger of its being used, which irrefutably means the massacre of innocents.¹⁴⁸

The six-minute-President myth, recounted in 1986 testimony by General Abrahamson, is already worse than bad enough. He told Congress, "Remember today the President has less than about six minutes to make a decision. The character of his decision is, 'Do I unleash my ballistic missiles against the Soviet Union?' "¹⁴⁹ The three-minute-military-advisor-cum-Flag-Officer reality

especially with respect to the proposed rail-garrison basing, which makes MX vulnerable even to SLBMs.

¹⁴⁷ See *Preventing Nuclear War: A Realistic Approach*, 1985, at 5,103-112,123,131-33. The book presents a collection of related papers generated by the Nunn-Warner Working Group. Regrettably, it appears that these establishment "experts" are expert politicians, whose teaching is a slim and slippery reed upon which to lean all posterity. (✓)

¹⁴⁸ See *Statement on the Illegality of Nuclear Warfare*, by the Lawyers' Committee on Nuclear Policy, New York, Dec, 1984, for a synopsis of this and like prohibitions. See also *Nuclear Weapons And International Law*, by Pogany, ed. (1987).

¹⁴⁹ General Abrahamson heads the Star Wars program. Conceding that the proposed defense shield would be triggered automatically, he acknowledged it might therefore accidentally execute. Forgetful that the Soviets might not be amused, he argued that this would create no danger or harm (Weinberger called the worst consequences an atmospheric "snap, crackle, and pop") whereas the continued reliance on a LOWC posed a much graver risk. He overlooked the fact that the seemingly innocuous activation of satellite "defense" will be at least conditionally coupled to attack on enemy satellites and to the alerting and launch of offensive nuclear missiles. All these actions are correlated to the general defense condition (DEFCON), as General Abrahamson went on to tell:

Mr. Dicks: You would be for pre-release?

Gen. Abrahamson: I believe what you would do is set up, as we do now, a series of defense conditions, and those defense conditions would probably have different pre-release concepts on them. And { since you are, again, not dealing with nuclear weapons that are going to destroy anybody on earth, they are only going to react to a system that's fired, it's a very different kind of situation.

(HASC, DOD Appropriations FY 1987, p.606-7.)

Despite appearances, a deployed Star Wars defense shield would not make ride-out of a first-strike more attractive, because the simplest expedient to defeat a shield would be to build more

is worse than this portrayal. *De facto*, the current U.S. launch on warning operation delegates to rapid, randomly called, military drills not just the decision to declare war, which the Constitution textually commits to the Congress, but the fate of the world, which the Founding Fathers committed to posterity. This grossly overlooks Sophocles' wise counsel that "a quick decision is an unsafe decision," a maxim which the Framers acted firmly upon in drafting Article I Section 8 of the Constitution, which decrees "The Congress *shall* have power to declare war."

The wise intent of the mandatory wording, which bars delegation to the President, was plainly expressed in letters between Thomas Jefferson and James Madison. Jefferson wrote that "one effectual check to the dog of war" was "transferring the power of letting him loose from the Executive to the legislative body, from those who are to spend to those who are to pay." Madison wrote: "The constitution supposes, what the history of all Governments demonstrates, that the Executive is the branch of power most interested in war, and most prone to it. It has accordingly with studied care, vested the question of war in the legislature."

The records of the 1787 constitutional convention confirm this. In response to a motion that the President be granted the power to declare war, Elbridge Gerry remonstrated that he "never expected to hear in a republic a motion to empower the President alone to declare war." The motion found no seconder.¹⁵⁰ As James Wilson explained to the Pennsylvania ratification

missiles. The cost of additional warheads promises to be less than the cost of the additional defenses needed to combat them, and in any case the shield offers no defense against cruise missiles. And, in a famous leak, Weinberger urged President Reagan that the proper response to the threat of a Soviet defense shield would be to build more missiles. Ride-out becomes even less attractive by virtue of the threat that a Soviet defense shield might seem to pose to the ragged retaliation launched after absorbing a full first-strike. The other side of this coin is that preemption is made more attractive, and thus crisis stability becomes ever-more precarious, as each nation becomes more suspicious of the other's intentions to strike first. The upshot of a even a partially successful defense shield would be increased reliance on launch on warning capability to deter the more dreadful preemption by the enemy, together with a reduction in basic response time and more complex decisionmaking. Far from relieving the pressure to use nuclear weapons quickly, defense shield technology commits vital strategic assets sooner, gravely exacerbating the precarious scorpion-in-the-bottles military dilemma.

¹⁵⁰ At the 1787 convention, had a machine of chance been proposed for the decision to go to war, what uproar would have arisen! Outrageously, this is the level to which things are rapidly sinking. Already, queer Rand Strategy Assessment System (RSAS) applications are online within the Department of Defense. RSAS is a computer program (written mostly in C and presently run on Sun workstations) developed to provide the NCA with real decisionmaking guidance

war based on suspicion of intent/attack

see 2d
intentional
(Enc. B. 1.)

i.e. an
incentive to
launch early
(first-
or (OW)
to get through
"shield"

convention:

NO This system will not hurry us into war; it is calculated to guard against it. It will not be in the power of a single man, or a single body of men, to involve us in such distress; for the important power of declaring war is vested in the legislature at large: this declaration *must* be made with the concurrence of the House of Representatives: from this circumstance we may draw the *certain* conclusion that nothing but our national interest can draw us into war.

Thus, the Constitution *precludes the possibility* that the Senate without the House, let alone the President without the Congress, let alone the military without the President, let alone automata, initiate war.

Some seriously ^{wild?} argue that not even the full Congress, Executive, and Judiciary acting together are constitutionally empowered to commit a large-scale launch of ICBMs. This is the gist of Professor Ball's thesis that the power to declare war does not include the power "to declare Armageddon."¹⁵¹ Others argue that the Preamble's ultimate concern for posterity holds overriding guidance as to the then unconceived nuclear war power.¹⁵² In any case, Article I Section 8

?
✓
Wavel ✓
during crises. It contains a program module called "Blue Agent," which represents the President of the United States. Freedom's flip-flops can take 1000 sub-decisions per second. This Computer-in-Chief is preprogrammed with a battery of nuclear "warfighting styles," one of which comprises a set of attributes prescribing the President's "temperament." An example temperament attribute ranks, on a scale of one to three, the President's "risk proclivity." Launch on warning, nuclear first-use, and other escalatory decisions are modelled by RSAS. Crossing the nuclear threshold could in some cases only be accomplished by disregarding civilian deaths either arbitrarily or by assessing the "value" of a nuclear exchange solely by unrealistic missile counts. That RSAS models have been "fudged" to cross the nuclear threshold is not an outrageous new charge, but a taken-for-granted war gaming trick. Thus Ruina notes that "often, strategic theorists justify the need for new weapons with conflict scenarios that are truly surrealistic and depend upon assumptions of perverse and suicidal reasoning." (*International Security*, Fall 1988, at 188.) An example technique for crossing the intercontinental nuclear threshold is to compute the expected ratio of remaining American to Soviet missiles after an intercontinental nuclear exchange, for America going first, and for America going second. The "price of going second" is the difference. In predefined circumstances, if the price of going second exceeds some threshold, then the decision may be to go first. See, e.g., *A New Methodology For Modeling National Command Level Decisionmaking In War Games And Simulations*, Rand R-3290-NA, Jul. 1986; *The Constitution v. The Arms Race*, in *The CPSR Newsletter*, vol.5 no.3, Spring 1987, available from the organization Computer Professionals for Social Responsibility, Palo Alto, California; and the last three chapters of *War Games* (1987) by Thomas Allen.

¹⁵¹ *Nuclear War: The End Of Law*, in *Nuclear Weapons And Law*, A. Miller ed., 1984, at 287.

¹⁵² See *Ibid.* That the Constitution applies to new technology, on the basis of clear underlying intention, was eloquently argued by Justice Brandeis in his dissent in *Olmstead v. United States*,

expressly mandates that the Congress is responsible not only for declaring war but also for authorizing ^{some} acts of force short of war, including hiring mercenaries and deciding on reprisals ("letters of Marque and Reprisal"), and generally "calling forth the militia to repel invasion." It could well be that the operation of a LOWC falls within the compass of this Militia Clause.

2
Certainly, such qualitative expansions of war as then existed were unambiguously reserved by the Framers for Congress. To their eyes, the global threat implicit in the nuclear first-use ^{yes, probably} decision would surely appear as such a qualitative expansion, rather than a continued waging, of war. In 1973, President Nixon shockingly drew attention to the very danger that concerned them. Under the pressures of Watergate, he remarked to congressional leaders, as proof of his responsibility because he hadn't done it, "I can go into my office and pick up the telephone and in 25 minutes 70 million people will be dead." The Framers surely intended to prohibit this foolish concentration of well-nigh absolute power.

✓
Donning its mantle of responsibility, in the mid-1970s the Congress held hearings as to whether it should legislate "no first-use." The matter was set aside to ripen. It did, but Congress comfortably forgets. See *First Use, supra*, for what the Chairman Zablocki aptly introduced as "a useful public record that will become a rich source of information and reference for the future."¹⁵³ In *To Chain the Dog of War*, Southern Methodist U.P. (1986), by Firmage and Wormuth, launch on warning is discussed at 65,67. Firmage and Wormuth conclude that even an infallible LOWC would unconstitutionally usurp the power of Congress to declare war, which

277 U.S. 438, 48 S.Ct. 564 (1928). His opinion later became the law regarding the illegality of intercepting telephone calls, under the Fourth Amendment.

✓
✓
¹⁵³ The hearings were held in part on account of the efforts of Jeremy Stone, Executive Director of the Federation of American Scientists, who has for over a decade campaigned against "first-use by one decisionmaker." The controverted practicality and constitutionality of a special Council of State capable of taking the first-use decision has been argued at length. See, *A Proposal for a Council of State in the Office of the Presidency*, in *Utah Law Review*, vol.335 no.2, 1987, by Prof. Arthur S. Miller; and especially *First Use Of Nuclear Weapons: Who Decides Under The Constitution?* 1987, which comprises essays by legal scholars in response to an explicit proposal by Jeremy Stone for such a Counsel. His proposal is expressly exclusive of launch on warning and may even permit unilateral presidential preemption. (See pp.17-18; however, see also p.115, where the key on-point case *Martin v. Mou*, *infra*, is interpreted exactly as this author had argued in court; see also *War Powers Legislation, supra*, at 673, for the misinterpretation of this case which the Defendant reproduced in court as detailed below.) ^{so!}

cannot not be automated, i.e. taken in advance for future generations.¹⁵⁴

Launch on warning exemplifies how latter-day practices flout the constitutional mandate that only Congress declare war. Consider the alerting process. The military can in principle generate DEFCON 1, which corresponds to a state of general war, without even presidential authorization. Citing Bracken and Steinbruner (see p.69 above), Daniel Ford cautions (*The Button*, *supra*, p.51):

So complicated are the wheels within wheels in each of the respective military machines, they note, and so great is the perceived requirement to take steps to offset what the other side is doing, that there is the grave possibility that a "two-sided" alert would itself be tantamount to a mutual declaration of war.

Steinbruner

Consider also ultra-secret war games, which generate models that become part and parcel of military posture and strategy. In them, "Congressional representation is relatively rare," even though the games frequently address the definition and appropriateness of "war," e.g.: "[One war game], played in 1983, drew nine admirals and generals, two ambassadors, and fifteen members of the Joint Chiefs of Staff. The players looked at the most fundamental question of war: Should it be declared?"¹⁵⁵

Most pertinently, the Congress has *rejected* the following addition to the 1973 War Powers Act, a delegation proposed by Senator Stennis:

The President may [unilaterally] use the Armed Forces... to prevent or defend against an imminent nuclear attack on the United States by the forces of any foreign government, but only if the President has clear and convincing evidence that such attack is imminent.¹⁵⁶

This met with great hostility precisely because, as Chairman Fulbright emphasized, it meant "that the President would be the sole judge, if he thought it was a dangerous situation, and that we might

¹⁵⁴ On congressional war powers in general, see also: *War Making Under The Constitution: The Original Understanding*, Yale L.J. Vol. 81, 672 (1972), by Lofgren (who provides Wilson's above quote); and *Covert War and Congressional Authority: Hidden War and Forgotten Power*, U.Penn. L.R. Vol. 134 No.5, 1035 (1986). ✓

¹⁵⁵ *War Games*, *supra*, at 23,31.

¹⁵⁶ *War Powers Legislation*, hearings before the Senate Committee on Foreign Relations, 1973, S.J.Res. 95, §2(3); see pp.565,593,618,712-3.

be attacked, then he has the right under this to launch a first-strike... without consulting anybody... If he thinks the country is in danger he may launch a nuclear war." Senator Case observed that "the President and Congress cannot commit America to the vagaries of a foreign power," let alone of machines. Senator Cooper stated for the record:

[I]f the Soviets launched a strategic nuclear ICBM attack, it would take about 25 minutes from the time we had radar warning until... the warhead hit, but in that time the President would have to decide whether to fire before we were hit... I think everyone here has agreed and those who have participated in our hearings agreed that we really would have to wait until they hit otherwise you might be countering with nuclear forces able to destroy much of the world and its people against what might be a non-nuclear attack.

Thus Congress positively declined to delegate to the President the authority to operate a 25-minute LOWC, let alone today's much briefer capability.

In the eventual War Powers Act,¹⁵⁷ the Congress resolved that: "The constitutional powers of the President as Commander-in-Chief to introduce the United States Armed Forces into ... situations where imminent involvement in hostilities is clearly indicated by the circumstances, are exercised only pursuant to (1) a declaration of war, (2) specific statutory authorization, or (3) a national emergency created by attack"; and "Authority to introduce United States Armed Forces into ... situations wherein involvement in hostilities is clearly indicated by the circumstances shall not be inferred-- from (1) any provision of law ..., including any provision contained in any appropriation act, ... or (2) from any treaty". Congress has not declared war on the Soviet Union, a LOWC is not provided for by statute or treaty, and the Soviet Union has not attacked.

Incidentally, there is no lawful emergency in effect which could even arguably justify the operation of a LOWC. The National Emergencies Act (P.L. 94-412) terminated all then existing emergency powers (and there were hundreds of them) effective September 15, 1978. The primary

¹⁵⁷ P.L. 93-148, 88 Stat. 555 (1973); bicameral passage over Presidential veto. The act states it was enacted "Under Article I, Section 8, of the Constitution [which specifically provides] that the Congress shall have the power to make all laws necessary and proper for carrying into execution not only its own powers but also all other powers vested by the Constitution in the government of the United States, or in any department or officer thereof."

motivation for the clean-up was *detente*, and the state of emergency declared by President Truman against "the increasing menace of the forces of communist aggression" was terminated with fanfare.

P.L. 94-412 states, under the title "History of Legislation" (p.8):

The mandate of the [Senate research] committee, as expressed in its authorizing resolution [S. Res. 9], was "to conduct a study and investigation with respect to the matter of terminating the national emergency proclaimed by the President of the United States on December 16, 1950, as announced in the Presidential Proclamation Numbered 2914."

The act notes that "this statute is not intended to conflict with, supersede, or alter any part of the War Powers Act" (p.4), and prescribes that the President, to exercise emergency powers, must issue a proclamation specifying the provision(s) of law under which he intends to act, which must be "transmitted to Congress and published in the Federal Register." Any such proclamation automatically terminates after one year, unless expressly renewed. Conclusively, there is no relevant state of emergency in effect.

And so, in the ultimate matter of declaring all-out nuclear war, not only is the Congress bypassed, but the Commander-In-Chief unduly relies upon the preprogrammed and military launch on warning order, rather than the order upon him. The father of logic and great-grandfather of artificial intelligence, Aristotle, advised against this, writing in *Metaphysics* that "the excellence of an army lies both in its order and in its general, but principally in him, since he is not dependent on the order but the order depends on him." Surely, even were war declared, the first decision to launch a barrage of ICBMs requires at least the competent attention of the Commander-in-Chief. So? Where survival of the species is threatened, does not irreducible uncertainty quash competence?

As a matter of fact, presidential participation of any sort is improbable, and, believe it or not, there are well-established limits to the President's authority to subdelegate special decisions, such as his personal obligations to appoint certain officials and to decide final court-martial appeals.¹⁵⁸ The Attorney General himself wrote: "the authorities indicate that the President cannot

¹⁵⁸ See, e.g., *Courts-Martial Convening Authority May Not Be Delegated*, OpJAGAF no.86, Nov 14, 1980. In general, nondelegation applies to discretionary, as opposed to administrative, decisions. See *Dalehite v. United States*, 346 U.S. 15 (1953), and *United States v. Varig*, 104 S.Ct. 2755

... delegate a discretionary duty, relieving himself of all responsibility, so that the duty when performed will not be his act. [Citations.]"¹⁵⁹ Nondelegation doctrine may rule, even up against claims of military necessity. As the court stated in *Hefferman v. Porter*, (1869) 6 Coldw., Tenn. 398 (emphasis added): "Whatever the president of the United States, as Commander in Chief, might do if personally present, may be done by the superior officer in command of any district *unless restrained by orders or by the peculiar nature of the service on which he is engaged*." Not only is a first intercontinental nuclear strike decision most peculiar, but also statutes, which have at least the force of orders, restrain military commanders from making the launch on warning commitment.¹⁶⁰

(?) The half-forgotten 1946 Atomic Energy Act prohibits presidential subdelegation of the basic nuclear release decision. See *Atomic Energy Act of 1946*, Hearings before the Special Committee on Atomic Energy, GPO 1946. From the extraordinary 1946 hearings, it is manifest that the framers of the act clearly perceived the dangers that confront us over forty years on. After due consideration, the Atomic Energy Act was enacted to guarantee civilian control over the

(1984) for "discretionary function" opinions. Typically, nondelegation doctrine has been applied to prohibit congressional delegation of legislative powers to the executive. Its application to prohibit the subdelegation of presidential powers has been infrequent but never wholly permissive. *Williams v. United States*, (1843) 1 How 290,297 recognized the necessity of delegating administrative chores (cash disbursements) subject to general authorizations from time to time. *Runkle v. United States* (1886) 122 U.S. 543,557 recognized that certain Commander-in-Chief judgments (court martial appeals) required personal presidential attention. On the same issue, *United States v. Fletcher*, (1892) 148 U.S. 84,88 confirmed this but held that the President's signature was not required; keeping the White House informed in a timely manner provided effective opportunity for presidential intercession.

¹⁵⁹ 38 *Op.Au.Gen.* 457 (1936); emphasis added. This bar against preprogrammed executive decisionmaking was the substance of an Attorney General opinion carefully proscribing the legality of Roosevelt's proposal that, when the Governor of Puerto Rico took leave of absence, the Acting Governor should be designated by the Secretary of the Interior. A controversy arose because the Governor's post was by statute a presidential appointment, but Roosevelt sought sane relief from nagging decisions contingent on the Governor's vacations. The Attorney General's opinion was that the President could delegate or prescribe the appointment of an Acting Governor only so long as the President retained an effective override capability in the event of a decision. In particular, the President could not order that, say, whoever was Commissioner of Education would automatically become Acting Governor of Puerto Rico when the Governor was absent, unless he reserved the power to change his mind in particular cases.

¹⁶⁰ Even were delegation to commanders accomplished by a personal presidential order issued in a state of war, the *Hefferman* opinion weighs against further subdelegation to automata, for the court firmly required that acts performed in lieu of the President "must depend upon" the military commander's "discretion."

military use of nuclear weapons, e.g. at 91-2:

✓ Sec. Ickes [Secretary of the Interior]: I said a moment ago this bill is designed to maintain the integrity and supremacy of civilian government. That seems to me a matter of very great importance... If you look at this problem of atomic energy only through military binoculars all that you can see is the threat of future wreckage, to which the only answer is more wreckage. Even the destruction of enemy cities at the outbreak of a war would not provide an adequate defense... If we want security for our homes and our children -- not just the uncertain satisfaction of hoping in an atomic war we might kill sooner or more of the enemy than they could of us, we are going to have to gain that security by working out arrangements of mutual advantage with other nations. Nor will that job be facilitated if we make atomic energy control a function of the military.

In framing the act, military objections were heard but overruled, e.g. at 79,488:

Senator Bird: [I]s the Army and Navy willing to turn this over to what we might term "a civilian commission" to decide whether or not the atomic bomb should be manufactured or used?

Secretary [of Navy] Forrestal: It is not.

Senator Millikin: General, do you believe that a civilian commission or a predominantly civilian commission should have the power to tell our military forces how many bombs to make, how many bombs to keep, how to make them, where to keep them, or what to do with them?

General Groves [Army]: No, sir; I think that would fall into the classification of policy, and would have to receive the approval of the joint chiefs of staff.

Na
?
? Not even the Joint Chiefs were sufficient for Congress. The conflict was resolved in favor of civilian, presidential control. 42 U.S.C. §2121, which expressly covers military use, says the President can use nuclear weapons, as follows: "The President from time to time may direct [the delivery of] atomic weapons to the Department of Defense for such use as he deems necessary in the interests of national defense". 42 U.S.C. §2122 prohibits all other use, thus affirmatively barring subdelegation.¹⁶¹ The committee also accepted that the act did not give even the President the right to drop atom bombs before consulting Congress, let alone the military the right to do so

Just Hatcher's opinion?

¹⁶¹ The 1953 Subdelegation Act, 3 U.S.C. §301, yields to this, under 3 U.S.C. §302. See also S 3323 and H.R. 8862 To Amend The Atomic Energy Act Of 1946, GPO, 1954, especially at 757, where the military use section of the act is discussed, and it is stated that "the whole concept of the McMahon [Atomic Energy] Act... was the civilian control of Atomic Energy, and... that is the intent at the present time -- to continue the idea."

before consulting the President (pp.126-7; see also p.538):

Dr. Hutchins [expert]: The Commission is subject to the direction of the President in regard to the foreign policy of the United States and the utilization of the atomic energy in the light of that policy.

Senator Millikin: Let us suppose that the President of the United States, under that theory, conceived the notion that the world is about to come out of the present armistice and go into war, and let us suppose then that he instructed the Commission to govern itself accordingly. Do you not think that the Congress ought to have something to say about this?

Dr. Hutchins: I should think it would. Congress does not abdicate by passing a single measure of this kind.

Senator Millikin: Well, it abdicates if one bad decision were made and executed before Congress could act... One bad decision might shape the whole face of the earth for all time to come...

The Chairman [Senator McMahon]: The President of the United States is the Commander in Chief of the Army and Navy, isn't he?

Dr. Hutchins: Yes.

The Chairman: As such, he is over the Army and Navy, and in the same way in charge of this establishment and this Commission, is he not?

NO ?

Dr. Hutchins: There is nothing in this act that would give the Commission the power to drop an atomic bomb. That would be an act of war on which Congress would have to take its own position.

NO

It is vital to recollect that the controverted issue was whether the then unformed Atomic Energy Commission would be subject to military control. It was well understood that both civilian and military applications of atomic energy were to be under the Commission's umbrella. The vote against including any military commanders in the Commission was the strongest possible affirmation that, certainly on a day-to-day or ongoing basis, the nuclear button was to be kept safely remote from military, let alone robot, fingers. A wholly civilian Commission was to physically store all atom bombs. The military could obtain them only by specific presidential order.

Over the years, Congress' determined exclusion of the military *altogether* from the Atomic Energy Commission had the opposite of its intended effect. In particular, military storage of atom bombs, at first controversial, became routine. Nevertheless, it was for a long time *but* recognized that mere possession of nuclear weapons did not imply any authority to use them. The Atomic Energy Act was construed as requiring a further presidential order for nuclear

no SU weapons then!

7
"release."¹⁶² The illegality under the act of subdelegation to order nuclear use was implicitly
7 recognized by Department of Defense expert Dr. James P. Wade in 1976.¹⁶³ But by 1981, the
military deemed the Atomic Energy Act irrelevant (see p.91 below). In the present LOWC,
presidential authorization for nuclear release is not a meaningful prerequisite. Even the process of
nuclear weapons development and procurement has substantially slipped from civilian to military
hands, as evidenced by the legislative history of the MX missile, especially versus the Midgetman.
(See p.30 above.) Despite the firmest enactment, the 1946 Atomic Energy Act is now commonly
misthought to apply only to the civilian use of atomic energy, and not to its military use at all,
whereas the control of military use by civilian authority was its first and foremost purpose. When
the act was written, Hiroshima and Nagasaki were fresh memories. The advent of the vastly more
powerful H-bomb should give the act even greater weight.

The operation of a LOWC is also prohibited by the United Nations Charter at Article 2
Part 3, which binds member states not to jeopardize the peace. Even the common law of torts
forbids the present LOWC, for a decision-to-shoot is regarded as necessarily requiring the real-time
exercise of human judgment, e.g.:

The user of a device likely to cause death or serious bodily harm is
not protected from liability merely by the fact that the intruder's
conduct is such as would justify the actor, were he present, in
believing that his intrusion is so dangerous or criminal as to confer
upon the actor the privilege of killing or maiming him to prevent
it. ... Even though the conduct of the intruder is such as would
have justified the actor in mistakenly believing the intrusion to be
of this character, there is the chance that the actor, if present in
person, would realize the other's situation. An intruder whose
intrusion is not of this character is entitled to the chance of safety
arising from the presence of a human being capable of
judgment.¹⁶⁴

¹⁶² That "detonation" of a nuclear device required specific presidential authorization under the act
was noticed by the court in *Pauling v. McNamara*, 1963, 331 F.2d 796, certiorari denied 84 S.Ct.
1336. This case decided that, with respect to peaceful atmospheric nuclear explosions, and the
consequent long-term threat posed by radiation, Plaintiffs failed to establish justiciability
because the President, under the Atomic Energy Act, had with due deliberation particularly
authorized the detonations.

¹⁶³ *First Use*, *supra*, at 184.

¹⁶⁴ *Restatement (2nd) of Torts*, Section 85, comment d; see also *West's Ann.Pen.Code*, Section 197,

The Federal courts have expressed clear concern that decisions that legally require human discretion be preserved against computerization. For example, computerized jury selection procedures were judged permissible only "as long as [the clerks] exercised all of the discretion at each step in the scheme where discretion was called for and permitted, and they exercised enough control over the system so that it was responsive to the mandates of the Act and the authority of the court."¹⁶⁵ The fallibility of computer systems is already a maxim of jurisprudence, e.g.: "Trust in the infallibility of a computer is hardly a defense."¹⁶⁶ Computerization that apparently liberates may in reality enslave, and a nation that depends upon complex computer programs for its security volunteers an Achilles heel.

Launch on warning poses the temporal apex of chilling questions. When, if ever, and to what degree, if any, is it moral, appropriate, and rational to subject the judgment of military commanders, political leaders, and we the people to the orders of robots? Computers increasingly govern the military, in worst cases supplanting, rather than supplementing, the sensible judgments of soldiers, commanders, and policy-makers. The joke that the IQ of weapons now exceeds the IQ of their end-users, is not a joke. For a decade, signalmen have outnumbered infantry in the army, and similar parallels exist for the other services. Electronic weapons systems not only demand babycare, they also select belligerent actions, thus substantively generating, rather than complying with, military orders. An *autonomous weapon* is a set of devices preconfigured to execute a belligerent act according to digitally evaluated conditions. Conflictingly interested proponents of autonomous weapons capitalize on the flawed rhetoric: "What if they called a war and no American had to go?" Autonomous weapons are shockingly encroaching upon military responsibilities, notably the execution of rules of engagement, in which the exercise of human discretion is enjoined.¹⁶⁷

subds. 1,2.

¹⁶⁵ *United States v. Davis*, 546 F.2d 583.

¹⁶⁶ *Ford Motor Credit Co. v. Swarens*, 477 SW 2d 53 (1969). See also fn.5 above.

¹⁶⁷ See *Smart Weapons*, in *Defense Electronics*, vol.19 no.10, Oct 1987; the book *Computers In Battle: Will They Work*, Chapman, ed., Oct 1987; and *Combat Robotics: The Silicon Soldier Is Coming*, *Armed Forces Journal*, Oct 1987.

The SDI depends upon knocking out Soviet missiles in their boost phase, while still over Soviet territory, and so requires an essentially mechanical and immediate response to satellite-based sensor warning of nuclear attack. SDI autonomy was chillingly discussed in the not outdated President's *Report of the Study on Eliminating the Threat posed by Nuclear Ballistic Missiles*, Volume V: *Battle Management, Communications, and Data Processing*, Feb. 1984, James C. Fletcher (emphasis in original):

By statute [inferentially the Atomic Energy Act], the use of nuclear weapons requires an authorization by the President... One could, of course, conceal the issue by calling a Presidential decision an item of external data, thus defining the problem away by stating that it was only a problem for sensors and communication links. Such a verbal trick does not diminish the importance of the issue... In all scenarios for Ballistic Missile Defense battle, timely action is essential, and it is acutely so if battle is to be joined in the boost phase. Time scales are too short for human decision makers to select among a complex array of alternatives. It seems clear, therefore that *some degree of automation in the decision to commit weapons is inevitable if a ballistic missile defense system is to be at all credible*. It seems to the [panel] that the battle management system must provide... an ability for the command authority to define thresholds or contingencies within which release of weapons is delegated to the automated system.

Amazingly, this italicized passage is now cited as a sort of *authority* for mechanical response, whereas it simply stressed a grave drawback. ?

Thomas Jarvis is the head of the MITRE corporation's command, control, communications, and intelligence division, which is the prime contractor for SDI command and control systems. After admitting that enabling the SDI defense was a political decision of the highest order, he quoted this passage and asserted it would be acceptable to preprogram "all plausible presidential views at the outset," because such automation was "consistent with that expressed in the Fletcher Report."¹⁶⁸ Concerning SDI automation, Robert Cooper, the Director of the Defense Advanced Research Projects Agency, in 1984 told Congress: "We might have the technology so he [the President] couldn't make a mistake." He was not joking when he added: "It is quite possible the technology could go right along with him, even into the bathroom."

¹⁶⁸ *Managing Nuclear Operations, supra*, at 667.

In the FY 1988 Defense Authorization Bill, the concerned Congress enacted a "person-in-the-loop" amendment proposed by Senator Bumpers, which prohibits research, development, and testing of SDI command and control systems that do not provide for an "affirmative" human decision made at an "appropriate" level of authority before the SDI's lethal defenses can fire.¹⁶⁹ The amendment fatally fails to distinguish between: (a) the deliberate decision to operate or enable a defense system; and (b) the go/no-go reflex or token decision that would be taken in the event of an attack warning, in real-time. The terms "affirmative" and "appropriate" being undefined, the amendment is open to a broad ^Rinterpretation that permits the enabling of an automatic SDI defense at any time by anybody. However, this is clearly not what is intended, for the amendment, under the general heading "Limitations and Requirements," is captioned "Architecture to Require Human Decisionmaking," i.e. the amendment is restrictive rather than permissive. The author's opinion is that the command and control system now being researched, tested, and developed under contract by MITRE, which envisages the reflex taking of a go/no-go decision in real time by console operators, and entails the peacetime enabling of the SDI by the military (not necessarily the NCA), is already violative of the intent of the Bumpers amendment.¹⁷⁰

Plainly, if the Congress is so concerned about the automation of a system that does not launch offensive nuclear missiles, it is more concerned about the automation of systems that do. These grave concerns gave rise to the 1946 Atomic Energy Act, with its prohibition against first-use decisionmaking by the military. There is no hint in the 1946 act that shortness of time could ever

¹⁶⁹ National Defense Authorization Act FY 1988-89, Conference Report to a Company, H.R. 1748, Division A (Department of Defense Authorizations), Title II (Research, Development, Test, and Evaluation), Part C (Strategic Defense Initiative), Subpart I (SDI Funding and Program Limitations and Requirements), Section 224 (Architecture to Require Human Decisionmaking), which reads:

No agency of the Federal Government may plan for, fund, or otherwise support the development of command and control systems for strategic defense in the boost or post-boost phase against ballistic missile threats that could permit such strategic defenses to initiate the directing of damaging or lethal fire except by affirmative human decision at an appropriate level of authority.

¹⁷⁰ See, e.g., *Statement Of Work For The National Test Bed Integration Contract*, Electronic Systems Division, Air Force Systems Command, Jul 28, 1987, at 11, 60-63.

be sufficiently good cause for automating nuclear retaliation. How could the programming of irreversible policies be competently specified, painstakingly programmed, warily wired, and accountably executed? ¹⁷¹ How could self-fulfilling panic be reliably distinguished from a valid

recognition that the world was momentarily to be blown up? "and US should join this"
 "Call this be a 'valid' recognition?"

Of course, the mere possibility of mechanical error does not in all cases proscribe automation. People are also imperfect. Besides, reliance upon automata may offer the best, or even the only, opportunity to win certain forms of combat. Notwithstanding, initiating and waging war are inherently nondelegable. *A fortiori*, war is a people-problem. Nobody can deny that the most perfect machine is in essence less than the least perfect person. Even machines that think are made (especially in Japan). As Descartes reflected: "It is no less contradictory to say of the more perfect

¹⁷¹ See, e.g., *Seattle Times*, Sep 20, 1987, *A New Battlefield: Software Warfare - Rising Form Of Computer Sabotage May Be Next Great Military Equalizer*, by Scott A. Boorman and Paul R. Levitt, who write:

If members of the John Walker spy ring could betray their positions of trust to the Soviets for nearly 20 years, what could US adversaries do to sabotage - quietly, from the inside - the complex computer programs on which US weapons vitally depend? ... Software warfare - attacking the software that controls or operates such weapons - may be the cheapest, simplest, and most effective way to cripple US defenses. Such sabotage is coming of age as a new type of systematic warfare, which can be waged far removed from space and time from any battlefield to influence not only combat outcomes but also peacetime balances of power ... Given a host of recent US spy scandals, it is easy to envision a computer programmer offering, if the price is right, to add or modify critical lines of software to benefit a hostile country... Given its scale and mission ... it is SDI that merits special scrutiny in light of software concerns. ... The effort to develop and coordinate all the necessary SDI software seems destined to involve several thousand software professionals working alone, working over many years. ... The extreme complexity of SDI software also suggests that significant bugs may be nearly impossible to trace - even after some future software saboteur is caught... Software warfare's relative cheapness ... may make it the next great military equalizer. ... [It] certainly lies well within the grasp of any number of aggressive lesser military powers with the means to buy insiders to plant crippling bugs.

The story cites on-point cases and authorities, but it broke before the discovery that the Soviets had successfully targeted Silicon Valley's hi-tech super-computer company Saxpy. Saxpy's manager Thrailkill reflected: "It's frightening to contemplate how many other firms like ours they've targeted, and are succeeding or have succeeded in stealing technology from." (*Defense Computing*, Vol.1 No.1, Jan 1988, at 47.) Launch on warning software is huge and complex, and so highly vulnerable.

that it is what results from and depends on the less perfect, than to say there is something which proceeds from nothing."¹⁷²

More particularly, the U.S. Supreme Court recently ruled: "Unless we make the naive assumption that the economic destiny of the Nation could be safely entrusted to a mindless bank of computers, the powers that this [Budget] Act vests in the [performing officer] must be recognized as having transcendent importance."¹⁷³ If this thinking applies to the disposition of parts of the national budget, how much more so to the launch of large numbers of nuclear missiles at the Soviet Union? Shall we allow any possibility that a city be blown up or humankind obliterated on account of software bugs, defective chips, and/or deficient designs, without provision for competent human participation in the decision?

LIKE HK!

+ see CPSR
draft letter

(like McNIS)
NO EARLY SECOND-USE

YES!

The author urges immediate action, such as the installation of a thirty minute timelock on all Minuteman and MX missiles, or preferably their retirement, at least conditionally.¹⁷⁴ My position is that to respond to a nuclear attack even within twenty-four hours would be irresponsible, and to respond within thirty minutes of an uncertain attack is illegitimate. The author's opinion is that the present parlous state of affairs re launch on warning would be in some measure constitutionally corrected were the House and Senate to separately hold electronic "Permissive Action Links" requiring their affirmative releases in order to remove the timelock. The political branches could work out reasonable arrangements concerning the administration of these responsibilities. An absolute (non-removable) timelock would be even better, and could be easily implemented.

delegation
for retail?
D-L?

Such a timelock would not usurp the President's discretionary power to employ nuclear weapons after general authorization either by Congress or by unequivocally confirmed (by actual detonations) nuclear attack. Nor would the loss of hair-trigger responsiveness significantly inhibit intentional first or second-use of nuclear weapons. Only in extreme circumstances could it preclude the preemptive use of nuclear weapons, in response to a strategic warning received only a few

¹⁷² Discourse on Method, circa 1625.

¹⁷³ Bowsher v. Synar, 106 S.Ct. 3194 (1986).

¹⁷⁴ See Professor Ruina's article quoted from at p.&SYAPGE above.

* Same. 1) D-L

2) retail!

targeting for...

(total withdrawal)

minutes before the anticipated attack. This seeming problem with a timelock is not real, for strategic warning is widely recognized to be far less certain than tactical warning, and so a decision to preempt taken within thirty minutes of a strategic warning would be even more irresponsible than a launch on tactical warning decision. John Toomay puts it this way:

[R]eliance upon strategic warning for nuclear operations would be utter folly. The failure of strategic warning - for whatever causes - is apparent in many historic disasters... Relevant strategic warning technologies read like a Baedeker of applied science, and the signs of imminent attack are much more varied and ambiguous than the physical signatures of missiles or aircraft in flight. Tactical warning is more amenable to rational and meaningful discussion than strategic warning.¹⁷⁵

Note well that strategic warning is as computerized as tactical warning, as Babbit makes clear:

The intelligence data handling system (IDHS), hosted on a series of IBM 3080 machines with VAX 11/780 front-ends, provides intelligence support to the staff at SAC headquarters and to the JSTPS [Joint Strategic Target Planning Staff] located at SAC [Strategic Air Command]. It is an all-source system for both SIOP planning and strategic warning. (*Managing Nuclear Operations, supra*, at 334.)

Computers are needed because strategic warning heavily depends upon real-time analysis of the enemy's huge volumes of radio messages. Code-hardened Babbit continues:

Traffic analysis, rather than cryptanalysis, is perhaps the greater threat to COMSEC [COMmunications SECurity] for strategic nuclear forces. As the volume of operational traffic increases, as normally quiescent command centers come on the air, and as dispersed forces establish new networks, the pattern of radio traffic changes noticeably. Changes in alert status, preparations for nuclear operations, and even dissemination of strike orders might be evident to enemy traffic analysts. It is almost surely from this source of intelligence above all others that the superpowers will make inferences about each other's intentions on the road to nuclear war. Strategic warning - and the vital question whether to preempt or wait - will probably hinge on traffic analysis. (*Managing Nuclear Operations, supra*, at 270.)

Also with a strategic warning, organizational phobia and panic are potent dangers, especially in a

¹⁷⁵ *Managing Nuclear Operations, supra*, p.283. See also *Strategic Warning And General War: A Look At The Conceptual Issues*, RAND N-1180-1-AF (1979); *Perception And Strategic Warning*, RAND N-1273-AF, 1979; *Surprise Attack*, by Betts, pp.4,5,229,246,247; and *Soviet Crisis Prevention And Management: Why And When Do The Soviets Take Risks?* RAND OPS-008, Oct 1986, p.12.

crisis.¹⁷⁶ And finally, even generating a strategic warning based on simple evidence of submarine movements is unwarranted, for the most threatening surges are routine exercises. As noted in the *Armed Forces Journal*, Apr 1988, at 52: "The 1986-87 Soviet exercises displayed major deployments of SSNs [submarines] into the Atlantic, and at what would have been the early stages of a conflict. 'Clearly, the "SSN flush," as it has come to be known, is an option,' Trost [Admiral in Chief of Naval Operations] noted."

? Launch on warning is unconstitutional, and the nuclear first-use decision is secured by the Constitution to Congress, not to traffic analysts' programs. The Judiciary and Congress should take steps to remedy the clear and present danger posed by an unchecked military. In particular, the 1981 opinion of the Judge Advocate General of the Air Force (*OpJAGAF no.42, 1981*) that nuclear release authority may be subdelegated and automated without limit, in peacetime, and regardless of risk, should be firmly corrected. Citing his impressive ignorance as authority, he wrote that CINCSAC could even command the Navy's nuclear forces, as follows:

We are unaware of any constitutional or statutory limitations on the President's ability to structure the chain of command in any manner he may choose. The authority to do so is inherent in his Constitutional role as Commander in Chief set forth in Art. II, sec. 2, cl. 1... Command, although never shared, may be delegated to subordinate commanders in the chain of command... CINCSAC could, in our opinion, be legally authorized to command all strategic nuclear forces of the United States.¹⁷⁷ 10 U.S.C. §124.

ref? ¹⁷⁶ Consider, e.g., the burning of all top-secret documents by the U.S. Managuan Embassy on May 9, 1984, because it was believed that Honduras had invaded. Reportedly, a radio news item to this effect was believed by the consulate staff.

¹⁷⁷ Although supposedly the Joint Chiefs' "baby," experts regard the SIOP as particularly the "war plan of CINCSAC" which is only "presumably consistent with the national security strategy," as follows (*The Army in the Strategic Planning Process*, RAND R-3513-A Apr 1987, at 74-6):

The U.S. military services encounter at least four different kinds of strategy that relate military means to military and political objectives:

1. **National security strategy** - the collection of concepts relating to the national means (e.g. political, military, economic, moral) to the various security ends of the nation. (e.g. survival, sovereignty, well-being), as promulgated by the National Security Council through memoranda to or from the President.
2. **Commanders in Chief's strategies** - concepts for relating the JCS-assigned means to JCS-approved ends, the latter presumably consistent with the national security strategy. These strategies are probably reflected more than

The Air Force Judge Advocate General's cites as authority 10 U.S.C. §124, which, *without mentioning nuclear weapons*, states blandly that combatant commanders exercise "full operational command" in performing missions assigned by the President and Secretary of Defense. This concept is interpreted as follows:

Congress further provided that the commanders of unified or specified commands shall have full operational command over the forces assigned to them. 10 U.S.C. §1024. The CINCSAC, as the commander of a specified command, exercises full operational command over all strategic offensive forces assigned or otherwise made available to him by JCS [Joint Chiefs of Staff]. Operational command includes those functions of command over assigned forces that involve the composition of subordinate forces, the assignment of tasks, the designation of objectives, the overall control of assigned resources and the full authoritative direction needed to fulfill the mission. [Citation.] (*OpJAGAF no.83*, Oct 3, 1980.)

10 U.S.C. §1024 does not mention nuclear weapons. A military LOWC would by such reasoning be construed as an "operation" authorized by the presidentially approved mission of ICBM

stated by the force or regional commanders in their actual war plans.

3. **Defense strategy** - a component of the national security strategy, it is interpreted and restated by the DoD, the JCS, and each of the services in their program planning guidance. The services are obliged to use (or to conform to) defense strategy in the formal planning, programming, and budgeting processes required by the JCS and DoD.
4. **Service strategies** - ideally components of the defense strategy, but more likely proposed alternatives to, or reinterpretations of, the defense strategy. The services then use these strategies for setting their own institutional agendas, rationalizing their requirements, and arguing for a larger or protected slice of the budget.

Of these four, the last would appear to have the greatest effect... [T]he CINCs have considerable latitude for their own interpretation... CINCs' strategies are generally not inconsistent with a reasonable interpretation of the national security strategy... The defense strategy, as manifested by the Defense Guidance, is a statement of very general, mostly political, ends and a prescription of specific military means to be acquired and maintained. The *relationships* between those means and ends are often missing... Those important relational concepts are embedded in the service strategies and not in the defense strategy found in the program planning guidance... The analyses presented here strongly suggest that the air and maritime strategies, whatever their intellectual merits, are *used* by the Air Force and Navy, not just to make their internal planning coherent, but *principally as devices for justifying the independence of their institutions, missions, forces, and, therefore, their budgets.*

"survivability."¹⁷⁸ This is in essence an "autodelegation doctrine."¹⁷⁹ According to the JAGAF, both 10 U.S.C. §1024 -- and even more so the October 1, 1986, Defense Reorganization Act, 10 U.S.C. §164(c), which grants combatant commanders dictatorial authority "[u]nless otherwise directed" -- accomplish legitimation¹⁸⁰ of a military LOWC, even though the President might be uninformed.

¹⁷⁸ The primary presidential directive re "survivability" of nuclear systems is reportedly National Decision Directive No. 13 (NSDD-13), issued by President Reagan in October, 1981. See fn.146 above for Scowcroft's broad application of "survivability" to MX deployment.

¹⁷⁹ It is pertinent to note that the autodelegation doctrine has been dominant in the Reagan administration, as highlighted by Admiral Pointdexter's pleading autodelegation of authority to approve the Iran-Contra diversion of funds, and by the assumption of responsibility for delicate negotiations with foreign governments by secretly hired privateers.

¹⁸⁰ "Legitimation" is defined in RAND Occasional Paper OPS-008, 1986 (p.10) as "efforts at legitimizing foreign policy actions, including behavior in crises or use of force," which "must be considered a universal phenomenon in the behavior of states."

HOPE IS NOT ENOUGH: THE LAUNCH ON WARNING LAWSUIT

Ensuring that the [strategic] forces would receive initial retaliatory orders remains our first priority. (Secretary of Defense, Report to Congress FY 1986.)

✓ *It also seems worth remembering Bertrand Russell's sage warning: "Pragmatism is like a warm bath that heats up so imperceptibly that you don't know when to scream." The decision to "scream" - to invoke the Constitution in resisting new roles for the executive - may have to be made. (Prof. Laurence Tribe, Constitutional Law, 1978, p.163.)*

Whether the present LOWC is unconstitutional, or, rather, whether this is a political question, is an issue now pending - for the second time - in the Ninth Circuit Court of Appeal in San Francisco (appeal No. 87-2566). In *Johnson v. Secretary of Defense*, trial court case No. C-86-3334, it is alleged that the present operation of a LOWC is an unauthorized act of war that tortiously threatens the plaintiff's life, in violation of his Fifth Amendment due process rights. In a prior hearing on July 10, 1985, No. 84-2495, a three-judge panel of the Ninth Circuit undid the arguments of Weinberger's attorney, as follows:

THE COURT: [The Constitution] was clear that only Congress can declare war. That's not a political question. That's a constitutional issue. It say[s] only Congress can declare war. It says only Congress.

[WEINBERGER]: [T]he matter of a Launch On Warning Capability is clearly that of a military and diplomatic affairs issue.

THE COURT: This question is presented to an Article 3 court: Has the president unconstitutionally declared war without the approval of Congress? Does Article 3 give the federal judiciary the power to address that constitutional question?

[WEINBERGER]: I believe Article 3 gives the court the power to decide whether or not the president is in fact causing the nation to wager war without a declaration by Congress, yes.

THE COURT: And that's because of the judicial branch's power of judicial review, wouldn't you say? That goes back to *Marbury v. Madison*. [(1803) 5 US (1 Cranch) 137.]

[WEINBERGER]: I believe it would, your honor [but] clearly the executive has the power to fight the [wars] that are limited, or that is, to commit military forces to combat in conflicts that are limited in time and scope.

THE COURT: [Would] the launching of a missile with nuclear warheads be limited military action?

[WEINBERGER]: It would be limited, I think Your Honor, in

time, yes.

THE COURT: It would be very limited in time for everyone... I'm not sure you're really dealing with the appellant's basic theory, which is that with this kind of capability that there could be an act of war by this country without any decision being made by anyone. That in effect, the decision whether to strike would have been turned over to a computer and (no) human being will be involved in that decision. So the decision to implement this capability is in itself a decision to engage in nuclear combat, if something happens beyond the control of anyone, of any governmental leaders. And that's effectively a declaration of war, and the president has taken that without the approval of Congress... [D]oesn't the implementation of this system require the approval of Congress?

[WEINBERGER]: The implementation of the Launch on Warning Capability would necessarily have the approval of Congress, because Congress is funding whatever research and procurement is involved in acquiring that capability, if in fact the executive and the military are acquiring that capability.

THE COURT: There's 20 million cases on the books. The constitution says, merely because Congress appropriates money is not congressional approval of anything. *true?*

The hearing concluded with a discussion of the rationale for and fallibility of launch on warning:

THE COURT: I hate to interrupt you, but since you interrupted, I've just had a musing about this suggestion that the rule is one for all times and all places. Let's suppose we were back [at Pearl Harbor] in 1940 or thereabouts and a large number of aircrafts, foreign aircrafts owned by a nation which in the United States had great tension at the moment, flew over our soil and they were identified as bomber aircrafts. You understand that the constitution would require that the bombs be dropped on our soil; that Congress be convened to consider that event before the president could order interceptors in the air to shoot at the airplane? Do you understand the constitution may require that?

[WEINBERGER]: I understand the constitution would not require that.

THE COURT: And in response to that event, which may have occurred, that the constitution limits the power of the Commander in Chief to take out the field from which the aircrafts were launched on foreign soil without convening Congress?

[WEINBERGER]: The constitution would not so limit the executive in that situation.

THE COURT: Now, those may be highly unrealistic examples in the modern world, but what we have alleged in the complaint is that missiles may exist which can travel the distance from their point of launch to the U.S. in a matter of minutes. And that because of that brief time span, there isn't an opportunity for human judgment to react to the events, [and that the executive branch were studying some form of computer printout to read the event. Machines can make mistakes and] we are not perfect. That's the one part of the lawsuit I tend to accept at face value. And that we may in fact respond to a nonattack. In short, we'll start the war rather than defend ourselves. That's the fear of

Pres, Congress

even if Pres is
"consulted"

(a person may be
asked to "decide,"
this, in 4 minutes,
given the computer

"finding...")
(or to over-ride
computer...)

handwritten:

1) to reduce (high prob of
a high prob of
larger, SU attacks)
faster,
more D-C response
if 30 strikes first.
b) But at cost of increasing
kind of a US FS which
SU has not
struck first.

That to prevent
2 witnesses det not to be
paraphrase

(but b) decreases
det, while
- increasing det II
+ FC cred.
- increasing return
(summit) if det
fails, or risk of
US goes first
(unless drop-
on both sides
leads to worse
outcome

everybody. Now, I gather that this is based on some constitutional mandate that the executive branch is precluded from studying the issue, and if funded by Congress, from implementing the technology to carry out such plan.

[WEINBERGER]: That is plaintiff's theory, Your Honor.

THE COURT: That's mandated by the Constitution of the United States.

[WEINBERGER]: That is clearly and inescapably [what the Plaintiff is saying], Your Honor. That a submarine-launched missile laying off of Washington, D.C. would lob a missile in, it would impact in three minutes this year, maybe 90 seconds next year, and that the constitution would prevent the executive and the legislative from working together to build some sort of a capability which might at least give rise to a consideration on the part of hostile foreign powers that the United States nevertheless could respond to this so-called decapitation type of attack. That's the plaintiff's theory.

*of implication:
a "mere" capability:
actually, a bluff.*

THE COURT: I think this may be beyond my capability which really raises the political question issue, but I would think that the presence of the technology to respond would be a powerful deterrent from shooting in the first place.

[WEINBERGER]: I should think so exactly, Your Honor... And as I understand it, it is the United States' policy not to say that they will never make the first-strike. Now, the reasons for that are widely discussed, widely disagreed about, and are defended in part on the proposition that this leaves uncertainty in the minds of hostile foreign powers as to what our intentions actually might be in certain strategic and tactical advantages and safeties that we otherwise wouldn't have.

THE COURT: Well, we should never, I think, lose sight of the fact that judges and politicians ultimately wage war. Machines wage war and they are capable of error. I think the problem here, if there is a problem, is the plaintiff's concern that the machines are not perfect. They're fallible. Well, that's the truth with respect to every machine we use, including automobiles and whatever.

Despite these discussions on and beyond the merits, the court ruled that the complaint should have been dismissed not as a political question, but because it failed to allege the present operation of a LOWC, having been drawn up hypothetically. This was corrected in a follow-up suit filed June 17, 1986.

The new complaint with particularity alleges the operation by the Defendant of a LOWC, and a consequential clear and present danger to the Plaintiff's life. It seeks a judicial declaration stating that the operation is unconstitutional on eight counts, and that therefore the Defendant is obliged to cease and desist from it. The first count contends that the threat of injury (risk) violates the Fifth Amendment's due process clause, and also constitutes a tort actionable under the Federal

and Alien Tort Claims Acts. Additionally: counts two through four allege that the Congress must authorize by declaration of war or otherwise (nondelegation doctrine), but has instead forbidden (War Powers Act and Atomic Energy Act), the alleged operation; count five alleges unconstitutionality irrespective of the Congress (nonrepublican government); and counts six through eight allege violations of the National Environmental Policy Act, the United Nations Charter, and other international law.

This current complaint was again dismissed as a political question by the same trial court judge, Spencer Williams.¹⁸¹ This repeat decision was expressly not *res judicata* (already decided), as the previous political question dismissal had been voided by the Ninth Circuit's ruling.¹⁸² The controversial subdelegation allegation is special to the fourth count, and is carefully worded as follows:

Defendant's LOWC perforce executes so briefly that the retaliatory launch decision, under prescribed and expected attack scenarios, will be taken by military commanders and without Presidential order.

In moving to dismiss the second suit, Weinberger first disputed this factual allegation by introducing a declaration of Pentagon nuclear war planner Colonel Hope, who swore to the formula:

Only the President can authorize the use of nuclear weapons, and

¹⁸¹ District Court case No. C-86-3334. Filed with the complaint was an endorsement by Computer Professionals for Social Responsibility, a declaration on launch on warning by ex-Lockheed missile designer Robert Aldridge, and a supporting memorandum by constitutional law Professor Arthur S. Miller. See *Congress, the Constitution, and First Use of Nuclear Weapons*, 48 Review of Politics, by Miller and Cox, (1986), and *Nuclear Weapons and Law*, Miller and Feinrider eds. (1984).

¹⁸² Indeed, Judge Williams refused to take the second case on the remarkable grounds that it was not related to the first case. Consequently, it was assigned to Judge Eugene Lynch. After Judge Lynch had heard substantive arguments, the case was reassigned back to Judge Williams. At the time of writing, Judge Williams is under investigation for allegedly trying to force more than one of his law clerks to grant sexual favors. Judge Lynch has been publicly admonished for having, in 1981, in a lower court, granted a \$1 million attorney fee to Wedtech Corporation figure Wallach, immediately after Lynch had asked Wallach to lobby the White House for the federal judgeship he soon afterwards received. This 57% contingency award was vastly in excess of the maximum 25% fee allowed (where a minor is Plaintiff) under court rules, and the Plaintiffs' medical fees (two badly burned girls) were more than the residual 43% of the settlement.

there are positive controls to preclude the use of such weapons without Presidential authority. The specific details of our nuclear release procedures are highly classified.¹⁸³

The Congress was so dissatisfied that an extraordinary footnote was appended to a subsequent report stating: "Reply is not only inadequate on an unclassified basis but does not respond to the question which could have been supplied on a classified basis."¹⁸⁴ The word "positive" implies or suggests a requirement for a *particular* presidential order, and excludes ongoing "subdelegations," "contingency" delegations, "predelegations," or whatever one chooses to call the delegation of nuclear release authority to the military.¹⁸⁵ Yet, subdelegations assuredly exist, as shown below. Colonel Hope was not enough: confronted with contradictory congressional testimony,¹⁸⁶ and a motion to interrogate Colonel Hope, at the hearing Weinberger asked the court to exclude the declaration, which it did.

¹⁸³ *Authority To Order The Use Of Nuclear Weapons*, GPO Dec 1, 1975, p.3.

¹⁸⁴ *First Use*, *supra*, p.184.

¹⁸⁵ Colonel Hope's use of the term "positive" to the control of nuclear weapons is *reversed* in strategic and military literature, which construes the requirement for presidential action as a form of "negative" control, and the subdelegation of authority as a move to "positive" control. The latter convention is natural from the perspective of the military analyst, the former is natural from the civilian perspective. See, e.g., *Strategic Command and Control*, *supra*, pp.281-283; *First Use*, *supra*, at 214-215; and *Nuclear Decapitation*, *supra*, by Steinbruner, at 23-24.

¹⁸⁶ Namely, the testimony of Admiral Miller at *First Use*, *supra*, p.73, which came soon after the above-quoted 1975 formula:

Mr. Zablocki: In your statement you say that one exception of the delegation of authority has to do with the North American Air Defense (NORAD) Commander, who has been delegated such authority only under severe restrictions, and specific conditions of attack... [W]ould you amplify further on what are the severe restrictions or specific conditions of attack by which the NORAD commander, without civilian determination could exercise his delegated authority? What, in other words, are the circumstances under which it would be solely the decision of the commander?

Adm. Miller: ...The precondition is that he must seek this [presidential] approval, and continue to seek it. He must seek it, and seek it again, and keep trying until we get into a situation that is *in extremis*... Then, the conditions of the attack must meet certain criteria.

This "if time and circumstance allow" loophole became notorious after its inclusion in NATO's Athens Guiding Principles (amended 1969). Though adopted, supposedly, to *require* the United States to consult with its allies prior to nuclear use, it is more often cited to show the opposite permission.

Maintaining that the subdelegation allegation had been proven "unequivocally" false by the declaration, Weinberger then asserted *arguendo* that even if the alleged LOWC did exist, it would have been funded by congressional appropriations, and so would have congressional approval. Confronted with a challenge to cite the pertinent sections of the defense appropriations bill, Weinberger expressly withdrew the argument of congressional approval.

Ultimately, Weinberger relied upon a contention of inherent presidential power to provide against an imminent threat of attack, and the trial court agreeably dismissed the suit as a matter of law, assuming that all the factual allegations are true. Weinberger's central authority was *Martin v. Mott*, 25 U.S. (12 Wheat) 19,30 (1827):

We are all of the opinion, that the authority to decide whether the exigency [an imminent threat] has arisen, belongs exclusively to the President, and that his decision is conclusive upon all other persons.

Despite the appearance fostered, *Martin v. Mott* in fact affirmed that the Constitution granted to the Congress the claimed authority, and did not even countenance subdelegation to military commanders. Presidential authority arose only by virtue of a carefully delimited delegation expressed in the 1795 Militia Act (1 Stat 424), which has long been obsolete. Properly applied, *Martin v. Mott* throws out the inherent presidential power contention, for the court's summary opinion was (p.18):

It has not been denied here, that the act of 1795 is within the constitutional authority of congress, or [argued] that congress may not lawfully provide for imminent danger of invasion, as well as for cases where an invasion has actually taken place. In our opinion, there is no ground for doubt on this point.

The relevant equivalent of the 1795 act is the Stennis amendment to the War Powers Act, which was *not* enacted.

Weinberger's secondary authority was *Greenham Women Against Cruise Missiles v. Reagan*, 591 F.Supp. 1332 (S.D.N.Y. 1984) aff'd, 755 F.2d 34 (2nd cir., 1985). Thus, Weinberger argued:

The same factors providing the basis for decision in the *Greenham Women* case are present... Determining the risk our threat assessment equipment poses, if any, requires great technical

expertise, as well as witnesses, and would definitely involve privileged and highly classified materials. Likewise, the court would have to speculate upon whether such a system was increasing significantly the risk of incalculable death and destruction, and making war rather than peace more likely.

The Plaintiff responded:

The *Greenham Women* dismissal was grounded upon the authorization expressed by a cited sequence of congressional appropriations, and by other public, national, and international political decisions... The *Greenham Women* opinion commences with the statement (p. 1333):

The decision to deploy cruise missiles at a United States Air Force base in Greenham Common, Great Britain, was the result of a planning meeting held in January, 1979... The deployment decision was jointly made by President Jimmy Carter and our NATO allies in December 1979. [Citations.] Congress over the years has appropriated funds for this plan. [Citations.]

The citations include eight appropriations statutes, Military Construction Authorizations, and so forth... No such public debate, far less statutory approval, sanctions the procedures challenged herein. Since the *Greenham* dismissal rested upon many specified, public political acts, especially those of Congress, the precedent is plainly inapplicable. There, the court was asked to overturn these broad decisions, to re-do them, substituting its own judgment as to the overall impact on world peace. Here, the Plaintiff merely asks this court to exercise its mandate to compel such constitutionally required deliberation, without prejudice.¹⁸⁷

¹⁸⁷ Plaintiff also argued in trial court briefs:

Bowsher v. Synar, 106 S.Ct. 3181 (1986), one of the most celebrated cases of the decade... challenged various provisions of the "Gramm-Rudmann-Hollins Act." The act profoundly affected the economic destiny of the nation, which, like the national defense, is committed to the political branches. In over 100 pages of opinion, the Supreme Court decided the constitutionality of a vital government decisionmaking procedure, without any suggestion that the case raised a political question. There, as here, the action was brought by a private individual. See p.3186; the issues of labor union and of congressional standing were not reached because of the obvious standing of a private individual. There, as here, the basic allegation was that a political decisionmaking procedure, which threatened injury to the Plaintiff, was overly automatic, and violated the nondelegation doctrine...

[T]his case requires no more balancing of the risks of deterrence than did the case of *Bowsher v. Synar*, 1986, 106 S.Ct. 3194 require that the court second-guess the balancing of the federal budget...

Eventually, dismissal was granted on the premature grounds that the President, by virtue of his inherent Commander-in-Chief powers, may legitimately operate a LOWC, whatever the degree of delegation and automation, without war or congressional authorization, and regardless of statutes, international law, and risk to life. The orders of dismissal read like a summary judgment on the merits, for instead of broadly ruling that the matter was "political," i.e. for the Congress and/or the President to resolve, Judge Spencer Williams excluded Congress from consideration, and characterized the operation of a LOWC as the "Executive's choice":

plausibility

How the President determines if the country is under attack and how he responds are matters entrusted to him under the Constitution. Second guessing his judgment in this area is not a task for which the court is well suited... The Court in making this ruling does not consider or rely upon the contention that Congressional appropriations provide a separate or additional rationale for dismissal... The Executive's choice of preparation against the threat of attack or response to an actual attack... is not reviewable by this court.

In the pending appeal, written by Thomas Robertson of the Bay Area Lawyers' Alliance for Nuclear Arms Control, Plaintiff's Summary of Argument read:

This case does not present a political question because:

In deciding the constitutionality of an executive subdelegation, it is the *de facto* circumstance that governs, as in *Bowsher v. Synar*, 106 S.Ct. 3181-3191 (1986):

To permit the execution of the laws to be vested in an officer only answerable to Congress would, in practical terms, reserve in Congress control of the execution of the laws... There is no merit to the contention that the [officer] performs his duties independently and is not subservient to Congress. Although nominated by the President... the [officer] is removable only at the initiative of Congress... the political realities do not reveal that the [officer] is free from Congress' influence... [a]lthough he is to have "due regard" for [executive rulings]... The congressional removal power created a "here-and-now subservience" of the [officer] to Congress... In constitutional terms, the removal powers... dictate that he will be subservient to Congress.

Just so, launch on warning subdelegations give rise to a "here-and-now subservience" of civilian and political to military and mechanical bodies.

- (1) cases involving governmental decision-making, and especially those under the "separation of powers" doctrine, are not textually committed to the Executive branch but are matters for the courts;
- (2) this case is clearly within the area of judicial expertise; and
- (3) prudence requires that the Constitution be observed in any decision to commence a nuclear war.

This is especially true in this case because of Congress' duty under the War Powers Clause (Constitution Article I Section 8) to declare war. This duty may not be ignored by the President nor altered by the Congress itself...

In this case plaintiff challenges the computerized system for launching a nuclear strike for three reasons:

- (1) When the system performs on its launch on warning capability, it removes the President from the constitutionally mandated decision-making process.
- (2) If the system performs in error, on a false warning of attack, and causes a nuclear first use, it removes the Congress from the decision-making process in violation of the War Powers Clause.
- (3) Because of the ongoing possibility and ultimate certainty that it will perform in error, the system constitutes an initial act of war which is also in violation of the War Powers Clause.

In response, the Secretary of Defense (by then Carlucci) backed away from the winning trial court contention that the Executive had exclusive authority, suggesting congressional oversight:

Here the matters which the plaintiff challenges are entrusted to Congress and the President, and the political branches are aware of the issues that concern the plaintiff. See, e.g. *Our Nation's Nuclear Warning System*, [supra]; *MX Missile Basing System And Related Issues*, [supra].

Plaintiff replied:

Defendant's brief brackets the political branches, as though the plaintiff were challenging procedures implemented with ongoing congressional oversight, and references two congressional committee reports. The defendant also cites the trial court's opinion that "National defense policy is committed to the executive and legislative branches." But the Defendant omits the Court's disqualifying conclusion: "The Court in making this ruling does not consider or rely upon the contention that Congressional appropriations provide a separate or additional rationale for dismissal," [and the statement that] "the Court did specifically exclude reference to congressional enactment." [Citations.] *Our Nation's Nuclear Warning System*, [supra,] shows that the Congress was denied access to a relevant report prepared by a civilian researcher for the congressional Office of Technology Assessment. It is difficult to see how Congress could have exercised its oversight function when the Congress asserts that information essential for that function has been improperly withheld. [Citations.]¹⁸⁸ *MX Missile Basing System and Related Issues*, [supra,] likewise does not aid defendant's case. At that time, it had not been decided whether

or not to base MX missiles in silos. The possible implication of launch on warning was of concern to the committee, but the report hardly indicates congressional awareness, let alone approval, of launch on warning posture. For example, the Commander in Chief of the Strategic Air Command, General Davis, indicated that such basing did not implicate launch on warning (at 384):

Sen. Warner: Do you believe the deployment of MX in Minuteman silos would result in the United States adopting a launch-on-warning posture?

Gen. Davis: I do not.

In any event, the Congress may not alter constitutional requirements by legislation, nor is it Congress' role to interpret the Constitution in a case or controversy. As recognized in *Powell v. McCormack*, 395 U.S. 486, 548-49, 89 S.Ct. 1944 (1969): "interpretations of the Constitution and of statutes... are quintessential tasks of the Federal Judiciary."

¹⁸⁸ *Ibid.*, at 84-108, 125-26, was one citation provided. This includes a lengthy memorandum by congressional counsel entitled "Invalidity Of The Defense Department's Claim Of Executive Privilege Regarding A Study Of Defense Department Shortcomings," with Exhibits. Nevertheless, Weinberger refused to provide the Congress, even secretly, with the report (which had been written by civilian Blair for the congressional Office of Technology Assessment), on the ground of executive privilege. In the memorandum, jurists point to the oversight responsibilities of Congress under Article I, Section 8, Clause 12, which gives Congress power "to raise and support Armies, *but no Appropriation shall be for a longer Term than two Years.*" Accordingly, Congress *must* know about expenditures that necessarily endure for years. Convincing precedents are cited. Note the ire of Chairman Brooks:

Rep. Brooks: I think it is really an insult both to the GAO and to Congress that they would even start this kind of hocus, and it is not over with... In all my 33 years in Congress, I have never run into a situation where the Department of Defense has attempted to control access by Members of Congress to a study done by a congressional agency...

Mr. Latham: ... there was material in there that is what we call extremely sensitive information. And it has to do not with procurement of weapons systems or how weapons systems operate or the command and control system operates; it has to do with operations and *it has to do with how the decision process works and it has to do with details of messages, none of which we believe is important to the assessment of how good our system is or isn't.*

Rep. Brooks: And you deny that to me today?

Mr. Latham: Yes, sir; I can't release the report to you today.

Rep. Brooks: You deny it?

Mr. Latham: Yes, sir. Mr. Weinberger and I discussed this yesterday morning.

Rep. Brooks: ... You can't live with the precedent, Latham ... we are going to have a right to look at it or a good lawsuit will see why, because we will stay right with it all the way down the line.

Mr. Latham: Then we will make a lot of lawyers rich over this one.

Ultimately, the threatened lawsuit was settled by permitting the Chairman and ranking minority

Article III of the Constitution mandates that the judicial branch has ultimate responsibility to interpret the Constitution and other law in controversies. Where deference to political decision is normally appropriate, as with the nation's nuclear defense, it is especially vital that the judiciary rule firmly on such few issues as present properly delimited constitutional questions. Judicial wisdom is essential to steady the course of the United States down the ages. The Constitution distributes power among three branches: Congress, the President, and the Judiciary. The logic of an old lyric applies to this separation of powers:

My hat it has three corners,
Three corners has my hat,
And if it had not three corners,
It would not be my hat.

It is inconceivable that the judiciary should have no role whatsoever in guarding against the evident new threat of nuclear annihilation. As Chief Justice Marshall declared in *Marbury v. Madison*, 1803: "It is emphatically the province and duty of the judicial department to say what the law is." And, as Justice Goldberg advised the Senate with respect to the justiciability of war powers controversies:

I said for the [Supreme] Court that our Constitution was not a suicide pact. I have not changed my views in this regard... [W]e have a Constitution; we have a system of judicial review; and we cannot accept the concept that cases involving unconstitutional wars, which involve citizens, may not at some point be decided by our highest judicial tribunal.¹⁸⁹

Eventually, the courts determined that the Vietnam war was constitutional on account of the authorizing Gulf of Tonkin Resolution, ongoing appropriations, and draft legislation.¹⁹⁰ In the

Frank!

members of the committee to see Blair's report. But a second citation referred to the similar (albeit less strident) and unresolved statement of frustration by a prestigious Senate committee, quoted at fn.183 above.

¹⁸⁹ *War Powers Legislation*, *supra*, pp.770,775.

¹⁹⁰ See, e.g., *Orlando v. Laird*, (1971) 433 F.2d 1039 (emphasis added):

Judicial scrutiny of Congress' duty of mutual participation in prosecution of war is not foreclosed by political question. In determining constitutional sufficiency of authority of executive branch to wage war in Vietnam, *test was whether there was any action by Congress sufficient to authorize or ratify the military activity in question*. Congressional action, including the furnishing of manpower and materials of war for protracted military operations in Vietnam

present case, no analogous enactments exist. The Congress has prohibited, rather than sanctioned, the alleged act of war, namely, the ongoing operation of a LOWC.

was sufficient, without an explicit declaration for making of war by the president, to authorize or ratify military activity in Vietnam, and thus executive officers did not exceed their constitutional authority by ordering servicemen to participate in war. U.S.C.A.Const. art. 1, Section 8, cl.11. Joint ["Tonkin Gulf"] Resolution Aug. 10, 1964, 78 Stat. 384; Joint Resolution May 7, 1965, 79 Stat 101; Act March 16, 1967, 81 Stat. 5.

Most case-law appropriations authorities were obsoleted by the War Powers Resolution, cited above.

CONCLUSION: THE PUBLIC MUST BE INFORMED

The essential principles of our government [include] a well-disciplined militia;... the supremacy of the civil over the military authority;... the diffusion of information and the arraignment of all abuses at the bar of public reason. (Thomas Jefferson, first inaugural address.)

The clear and present global danger posed by the United States launch on warning policy begs for a political remedy. Yet, the United States reliance upon its LOWC is weightily *growing*, in parallel with the omniscient computerization of strategic arsenals. Not only have computerized missile guidance systems created vulnerabilities which, to controlling military minds, *force* the deterrent of a LOWC,¹⁹¹ but also computerization credibly provides this seductively cheap and

¹⁹¹ For example, CINCSAC General Ellis testified as follows (SASC, DOD Appropriations FY 1981, pt.2 at 502):

Sen. Jackson: What can you do to improve the survivability of Minuteman? I assume, of course, you have always been looking at launch on warning -- which I think is a very dangerous concept.

GEN. ELLIS: Beyond the recently completed [silo] upgrade program there are no plans to improve its survivability other than launch on warning, and I certainly agree with your assessment of that tactic.

Sen. Jackson: But that is what you could be forced to do in a crisis management situation.

Gen. Ellis: We could be forced to do that.

Likewise, a top Office of Technology Assessment official called the present LOWC a "disagreeable necessity." The perceived military truism is that silo vulnerability "gives the USSR an obvious first-strike incentive to hit the Peacekeeper (or Minuteman), or forces the U.S. to launch on warning." (*Armed Forces Journal*, 1984, Mar. p.56). This truism has come to dominate both long term nuclear strategy and day-to-day military posture. The present "imperative" reliance on a LOWC has long been foreseen. For example, in 1974 a Los Alamos Field Testing Division Group Leader wrote:

The concept of launch-on-warning has correctly been deplored in the context of a spasm-response countervalue-oriented [i.e. city-targeted] strategic emphasis. It is quite a different situation when counterforce [i.e. military-targeted] objectives are primary, when an opposing force is known to have the characteristics imputed to future Soviet forces, and when the warning is based on observation of an attack as massive as would be necessary in any attempt to disarm us. Attack assessment in the 1980's must be made adequate for that purpose... With the target system fixed and no ABM defense of silos, each side can, if it has the will, arrange its forces so that a disarming first-strike by the other cannot possibly succeed. This is not an unstable situation. If the Soviets achieve a high enough kill probability to threaten our force in the first wave of the attack, a launch-on-warning capability on our part could

potent deterrent notwithstanding the vanishing warning time.

As Senator Humphrey feared in 1981, the deployment of MX missiles was "driving us down the path of less and less attractive options, more undesirable options, and at the end of the path is the option we all want to avoid, much less embrace; namely, launch on warning."¹⁹² Today, at the end of that path, launch on warning is embraced by military minds, much less avoided. It is avoided only in declaratory policy. Republican government is thus short-circuited, in violation of the guaranty clause¹⁹³ and also of the First Amendment, which assures freedom of the press and embraces the right to know. The right to know is the cornerstone of government by consent, for uninformed consent is not consent, and, without the right to know, freedom is "a river without water."¹⁹⁴ Madison also expressed this well:

A popular government, without popular information or the means of acquiring it, is but a prologue to a farce or tragedy; or perhaps both.¹⁹⁵

Einstein foresaw both the problem of dominant military modes of thought, and its necessary remedy. He urged, "To the village square we must carry the facts of atomic energy. From there must come America's voice." We the people must awake and awaken others to the intolerable here-and-now risk of computer-catalyzed nuclear catastrophe. Let us denounce launch on warning as unsafe, unsound, unnecessary, and unconstitutional.

* It is "not to be relied on" for deterrence, retaliation;
But it is relied on, for D-L!

Q of D-L is the villain — for any reason

+ pressure and temptation to miss
(i.e.) + poss. of false alarm (and knowledge
other way down
false alarm...).

become imperative -- assuming we do not move entirely away from fixed-based ICBMs. (*First Use, supra*, p.239.)

¹⁹² *The MX Missile and Associated Basing Decision*, Dec. 8, 1982, GPO.

¹⁹³ The Constitution, at Article IV, Section 4, guarantees "a republican form of government."

¹⁹⁴ *In re Mack*, 386 Pa. 251,273 (1956).

¹⁹⁵ *9 Madison, Writings*, Hurst, ed. 1910; letter to Barry, Aug 4, 1822. See also *The Public's Right To Know*, Praeger Publishers (1981), O'Brien, and *Legal Foundations Of The Right To Know*, Washington Univ. L.Q., 1976, No.1, by Professor Emerson, which begins by applying Madison's above statement to the "unforeseen possibilities of mutual destruction."

APPENDIX

THE SUBDELEGATION OF FIRST-USE AUTHORITY

This Appendix reviews further evidence that nuclear first-use authority has been subdelegated to military commanders, focussing on launch on warning. Note well that the subdelegation of launch on warning authority is critically more unsafe than subdelegations that are not so desperately time-constrained. For other discussions of nuclear subdelegations, not all of which are reported herein, see: "*Finger On The Button*," *Common Cause Magazine*, Jan-Feb 1984, at 12-19; *The Command and Control of Nuclear Operations*, *supra*, at 198-201,222-242; *The Button*, *supra*, at 141-146,151-152; *SIOP*, *supra*, at 160-1,207-9,215; *Can Nuclear War Be Controlled*, *supra*, at 38; *First Use*, *supra*, at 37,49,79,92; and *Our Nation's Nuclear Warning System*, *supra*, at 24.

The more adamantly senior defense officials affirm that the Succession Act (3 U.S.C. §19) will be duly heeded in the event of nuclear attack, the more insulted are the Congress and the people of the United States, and even less credible become all other facets of the Defense Department's declaratory policies. As President Carter's Presidential Directive 41 commonsensically concluded, "it may not be possible to evacuate those members of the National Command Authority in town at the time." A typically ludicrous exchange on this point was solemnized by the incorporation of 3 U.S.C. §19 into the congressional record, after usual refusals to countenance the probabilities that the White House would not instantly respond during a surprise attack, nor exist after a first nuclear detonation. However, persistent questioning by Chairman Brooks drew the "kind of interesting" suggestion that a military advisor to the President could be construed as possessing Presidential authority.¹⁹⁶

As a practical matter, instead of said statute, into the record should have been written Joint Chiefs of Staff Publication No. 13, which:

¹⁹⁶ Rep. Brooks asked Latham: "What if the President and Vice President are out, the Capitol has been slowed down and you can't find the Speaker or the President pro tempore of the Senate, and the Cabinet officers are all down here eating lunch?" Persistence elicited a response vaguely referring to the authority of the "White House military office." (*Our Nation's Nuclear Warning System*, *supra*, pp.77,110-112. ✓

[P]rovides the procedures for the special line of succession within the National Command Authority, the official body that would authorize the release of nuclear weapons under normal [sic] circumstances. That line of succession goes from the President to the vice-president, to the secretary of defense and his deputy, and then to the Chairman of the Joint Chiefs of Staff... (*SIOP, supra*, at 200.) ✓

The tell-tale divergence between this *de facto* military line of succession and the declaratory civilian line is the occurrence of the Secretary of Defense, without deference to any President *pro tempore* of the Senate. As the *Washington Post* reported (Dec 13, 1981): "In the event of incapacitation or inaccessibility of the president, the chain of command for nuclear launch authority runs from Reagan to Vice President Bush, Defense Secretary Weinberger, Deputy Secretary Carlucci, and Gen. Jones of the Joint Chief of Staffs."¹⁹⁷ This *military* line of succession is even miscalled "*civilian* authority" by virtue of the "civilian" 1958 Reorganization Act (10 U.S.C. §124), which defines the basic military commands.¹⁹⁸

Reasonable assurance that nuclear predelegation exists pervades strategic literature. For example, in discussing the aftermath of a first-strike, it is taken as given that "both sides know that once nuclear war has begun, lower level commanders may be able to continue attacks regardless of the condition of large command and control networks."¹⁹⁹ The military colloquially refer to their "nuclear commanders," or "SIOP-CINCs," presuming them to posses nuclear release codes, and even Senators refer to CINCSAC as "the so-called Nuclear CINC."²⁰⁰ The arrogant perception of command and control contractors is exemplified by IBM's Babbit:

¹⁹⁷ This line of succession was the only one mentioned in *MX Missile Basing, supra*, which remarked *en passant* (p.283):

Decisions regarding the use of U.S. strategic forces are in the hands of the National Command Authorities, i.e., the President and Secretary of Defense or their successors. ✓P?

¹⁹⁸ See, e.g., *First Use, supra*, at 185. The new Defense Reorganization Act was signed into law October 1, 1986. See *Armed Forces Journal*, Oct. 1986, pp.21-25 for an overview of its contents. No changes in the above line of military succession are apparent. The major relevant provision is for the Chairman of the Joint Chiefs of Staff to prepare strategic plans, net assessments, and contingency plans. According to outgoing Chairman General Jones, he commanded little more than his secretary and personal aide (1982 testimony). Nevertheless, the changes give him no combatant authority.

¹⁹⁹ *Assessing the Capabilities of Strategic Nuclear Forces, supra*, p.29.

²⁰⁰ Senator Wilson, SASC, DOD Appropriations FY 1988, pt.1 at 184.

U.S. military organizations provide for the devolution of command to duly deputized alternates or successors at each level of command in the organization. Thus the destruction of a command facility and the inability of a CINC [combatant commander], for example, to exercise command and control may not materially affect the performance of his command and control *functions* if his alternate or successor has the staff, codes and authenticators, communications connectivity, and the information necessary to assume command. Indeed, ongoing upgrades are aimed to ensure continuity of command and operations... Most people would probably like to imagine that only the president has "the codes" enabling launch crews and air crews to use their nuclear weapons.

That such a scheme would be unwise and cannot possibly be the case in the U.S. command system is obvious, since it would lay the United States open to true decapitation. In fact, the U.S. government has acknowledged that the submarines have on board everything they need to launch their missiles except the authority. Though the Minuteman launch control centers and the individual bombers need enabling codes provided from higher commanders, the threat of decapitation would indicate that such codes do not reside exclusively with the president. More detail than this has not been made public. But clearly the distinction between those enabled to use nuclear weapons and those authorized to do so is fundamental to a nuclear command system. Both sets of people could change as the circumstances changed from peacetime to alert to war... Authority can be delegated contingently.²⁰¹

a) on warning over son
is suff. for low...
now is sent:

"On destruction of
Washington, Offutt +
Locking Glass, "bases"
are both enabled
and authorized..."

(and subs)

That CINCSAC possesses nuclear release codes is supposed to be a secret, but it is a fact

to most experts. Note, for example: "At the headquarters of Strategic Air Command in Omaha, Nebraska, we were shown the red metal boxes, secured with padlocks, where the war codes and plans are kept." Further, how else construe then Secretary of Defense Schlesinger's remark that a first-strike on Washington by the Soviets could "*leave them at the tender mercies of CINCSAC*"? Likewise, in a 1980 Senate hearing, William Perry, the number three man in the Defense Department, replied to Senator Gary Hart's question "In other words, whether the President or Washington, D.C. exists, the Soviets are still going to be hit?" with "That is correct."²⁰²

In-the-know experts uniformly assert that the public can be reasonably assured that members of the Joint Chiefs of Staff have the independent ability and predelegated authority to use nuclear weapons, and some have spoken out. Ellsberg reported that authority to launch nuclear

²⁰¹ *Managing Nuclear Operations*, *supra*, p.339.

²⁰² *Treatment Of Escalation In The RAND Strategy Assessment Center*, RAND N-1969-DNA, 1983, at 35; and *SIOP*, *supra*, pp.13,207.

weapons had been delegated by President Kennedy to "six or seven three- and four-star generals," telling how in 1961 he had been informed of letters from the President to each of the unified and specified commanders authorizing the use of nuclear weapons in specific emergency conditions.²⁰³ In particular, Ellsberg was informed that *CINCSAC was authorized to retaliate during a crisis, if communications with the President were cut off*. Ellsberg also learned that both President Eisenhower and Johnson similarly subdelegated nuclear release authority. Kennedy passively continued existing practice, for only ten days after taking office,[?] he had been cautioned by McGeorge Bundy concerning "existing papers"[?] that indicated "a situation today in which a subordinate commander faced with a substantial Russian military action could start the thermonuclear holocaust on his own initiative if he could not reach you."²⁰⁴ *by authorization*

Subdelegation to CINCSAC existed from an early date, at least in a *de facto* sense. In the early 1950s, General LeMay told Mr. Sprague that he was not worried about SAC's vulnerability because, on receipt of strategic warning of imminent Soviet attack from intelligence and surveillance agencies, "I'm going to knock the shit out of them before they take off the ground." Sprague objected that this was not United States policy, but LeMay retorted "It's my policy. That's what I'm going to do."²⁰⁵ Most frighteningly, the super-secret Joint Strategic Capabilities Plan (JSCP, pronounced *jay-scap*) of 1960 called for the execution of the full-scale nuclear war plan automatically, in the event of *any* armed conflict with the Soviet Union. The plan then comprised a single massive attack on the Soviet Union and its allies.²⁰⁶

How did the military legitimize this plan? The military keeps its own definitions of many

²⁰³ See *New York Times*, Nov 4, 1977, at A9; *Nuclear Armament*, Conservation Press, 1980, at 2; and *Common Cause*, Jan-Feb, 1984, at 17.

²⁰⁴ Memorandum to the President, "Policies Previously Approved in NSC Which Need Review," January 30, 1961, JFKL/NSF, Meetings and Memoranda Series, Box 313.

²⁰⁵ Reported in *The Wizards of Armageddon*, *supra*, at 132-134, and confirmed in a letter by Sprague, *A Nuclear Golden Age?*, *International Security*, Winter 1986-7, p.20. This "plan" was secretly approved of by Eisenhower, it is thought.

²⁰⁶ Ellsberg confirmed that the Emergency Action Messages of the time did not allow for the possibility of withholding strikes against China. At the conclusion of one presentation of this Emergency War Plan, CINCSAC Power smilingly remarked to Secretary of Defense McNamara "Well, Mr. Secretary, I hope you don't have any friends or relations in Albania, because we're just going to have to wipe it out." (*The Wizards Of Armageddon*, *supra*, at 272.)

terms having legal ramifications, which it generally does not publish. The 1960 JSCP, which no civilian had seen before Ellsberg, including the President and Secretary of Defense, contained an annex with the definition: "A *general war* is an armed conflict in which Armed Forces of the U.S.S.R. and those of the United States are overtly and directly engaged." This definition was resisted by the Army, which in 1958 unsuccessfully tried to append the clause "as principal protagonists with the national survival of both deemed to be at issue." The significance was colossal, for general war called for the immediate execution of the nuclear Emergency War Plan. Well aware of this implication, the military completely excluded the definition from the version of the plan shown to the Secretary of Defense and the President, which was called the Joint Strategic Operational Plan. In 1962, on account of a crusade by Ellsberg, the definition of "general war" was amended so as to exclude non-vital conventional conflict.²⁰⁷

However, to this day the JSCP houses the military's amazing power to declare war by secret verbal trick. Just so, it legitimizes the present military LOWC. While superficially providing for presidential and congressional oversight, the JSCP, together with its virtually unreported progeny, the SIOP, enthrones the military as dictators of nuclear operations, up to and including some forms of first-use. As with the definition of "general war" uncovered by Ellsberg, the JSCP, written by the Joint Chiefs, secretly translates *general* guidance into *capabilities* requirements, and, also secretly, the SIOP implements these capabilities. Latham recently described the process:

Several National Security Decision Directives now provide the overall direction and policy for planning, management, acquisition, and oversight regarding nuclear operations. The NSDDs give the [Command, Control, Communications, and Intelligence] systems supporting operations the highest priority... The process whereby national policy on the employment of nuclear weapons is translated into force readiness for faithful execution is both complex and time consuming. The principal document from the office of the Secretary of Defense is called the Policy Guidance for the Employment of Nuclear Weapons (NUWEP). It stands as the secretary's guidance and direction to the Joint Chiefs of Staff for their consideration when developing the Joint Strategic Planning

²⁰⁷ *The Wizards Of Armageddon*, *supra*, at 277-9. See also the memorandum from U.S.G. Sharp to Secretary, JCS, on changes in CINCEUR Plan 100-1 through 100-4, Aug. 21, 1958, CCS 381 (11-15-48), Sec. 19, NA/MMB.

= JSOP?

Based on
NUWEP

Document (JSPD) and the Joint Strategic Capabilities Plan (JSCP). The Joint Chiefs are ultimately responsible for formulating the strategic plans that the commanders in chief would execute... The JSPD is used to advise the president, the National Security Council, and the secretary of defense on the military strategy and force structure required to attain national security objectives. It provides the basis for major policy discussions with the secretary and his staff before the annual drafting of the Defense Guidance. The JSPD provides the Joint Chiefs' recommendations on military strategy; the Defense Guidance contains the final approved military strategy...

different from NUWEP

With direction from the NUWEP, the Joint Chiefs develop the Joint Strategic Capabilities Plan. The JSCP, unlike the JSPD, is limited to consideration of current force structure and capabilities and provides direction to the major commander-in-chief (CINCs) on employment of their assigned forces, with specific direction for employment of nuclear weapons. It also provides direction to the Joint Strategic Planning Staff (JSTPS) for developing the nuclear employment options contained in the Single Integrated Operational Plan (SIOP)... Development of the SIOP is a purely military function. Civilian oversight of that function is provided through summaries for review by the defense secretary and his staff. Revisions to the SIOP also result in periodic briefings on the changes to the secretary and his staff. These processes provide assurance, through civilian oversight, that the final military operational plans conform to national objectives, strategy, and policy.²⁰⁸

Is this
stated?
It is said
of the
SIOP.

(?) Note that the JSCP is not reviewed by any civilian authority. The defined procedures, while permitting the loophole of entrusting the military to prepare secret plans, supposedly legitimize the SIOP, and the included LOWC.

Recognizing the reality of secret nuclear sub- or even auto-delegations to the military, in talking of the United States response to a decapitation attack, Senator Warner observed: "I think the Soviets have a better idea than the Americans as to how we would handle the question of command and control under these circumstances. I guess they know somebody will survive who will have the authority to execute the forces."²⁰⁹ Indeed, the fact that the Joint Chiefs of Staff retained copies of the codes enabling launch of the United States nuclear arsenal became public knowledge after the March 30, 1981 assassination attempt on President Reagan. Immediately after the assassination attempt, the FBI assumed custody of the President's set of codes, and Attorney

²⁰⁸ *Managing Nuclear Operations, supra*, at 642-643.

²⁰⁹ SASC, DOD Appropriations FY 1983, pt.7, at 4691.

General Smith ruled that the FBI keep it despite demands for its immediate return by Presidential aides. The card was secured, and yet:

Weinberger clearly was in charge of pushing nuclear buttons through the National Command Authority control system. According to Pentagon directives, the NCA is "the channel of communication for execution of the Single Integrated Operational Plan." It goes from the president, the vice-president or the secretary of defense right down through the underground bunkers and to the commander of the SAC Cover All airborne command post [Looking Glass]. The brigadier-general aboard the Cover All plane is the lowest ranking officer in possession of the nuclear codes. (*SIOP*, *supra*, at 206; see also *Sacramento Bee*, Dec 8, 1985, E-6.)

✓ A resume of revelations resulting from the assassination aftermath were published by the *Washington Post* (Dec 13, 1981, at A-1, emphasis added):

Interviews with a number of knowledgeable officials also show how, in certain circumstances, "pre-delegation" agreements automatically relinquish the president's control over U.S. nuclear forces. In the event of incapacitation or inaccessibility of the president, the authority to launch nuclear weapons can pass, according to officials knowledgeable with the agreements, through a chain of command that runs from Reagan to Vice President Bush to Defense Secretary Caspar W. Weinberger, to Deputy Defense Secretary Frank C. Carlucci, to Gen. David C. Jones, chairman of the Joint Chiefs of Staff. Each of these officials carries his unique code card which can, when command passes to him, be used to authenticate a nuclear order... [O]fficials say Weinberger would have had the authority to make any decision to launch nuclear weapons in crisis... On his own authority, Weinberger raised the readiness of U.S. forces from condition five to condition four on the standard scale of five levels of alert... These officials also said they believed that duplicate or alternate codes should have been available to the president through his military aides... The military commander could [and impliedly could not] simply ask the president to refer to various codes on the card that would match corresponding codes in the war room to ensure that the order was legitimate. Though the Defense Department has taken the position that only the president can authorize the use of nuclear weapons, previous administrations have set up their own chains of command, officials say. If the president is unreachable due to health or communications problems, someone must hold his authority to respond to nuclear surprise attack. This chain of command for emergency action is different from the line of succession specified by Congress and the 25th Amendment to the Constitution... Officials say that delegation of the president's nuclear command authority historically has been an exclusive prerogative of the executive branch and that Congress apparently has not exercised oversight authority on the matter.

How does he know?

or earlier?

The *de facto* supremacy of the military is further clear from the fact that the President does not know or understand enough to choose among the various SIOP launch-on-warning suboptions, a selection which must be made in moments from an infamous 75+ page booklet kept with the so-called "Football," the bag of nuclear release codes and devices that accompanies the President at all times. David Frost asked former President Richard Nixon "What's in it? A phone?" Nixon replied "I haven't the slightest idea... I've never checked it. I wouldn't have the slightest idea what was in it." (*Armed Forces Journal*, Dec 1981, at 38.) The Joint Chiefs and CINCSAC flatly presume that the President is not knowledgeable enough to select the precise response. General Dougherty has frighteningly argued that presidential participation in procedural rehearsals, and in real-time, is merely metaphorical (*Managing Nuclear Operations*, at 419):

For the president, as commander in chief, to recognize and accept the possibility of such a demanding surprise scenario [bolt-out-of-the-blue] and to participate in related study and preconditioning exercises exacts a political and diplomatic price... In this scenario, and in the planning for actions or inactions, the nuclear commanders can -- and have been -- very useful in assessing for the president the potential consequences of various options open to him. No doubt, the commander in chief of the U.S. Space Command will also be a dominant adviser in these scenarios. He evaluates the raid size, launch points, trajectory, impact areas, and the dynamic reliability of his various inputs and sensors.²¹⁰ All the commands depend on the Space Command's surveillance and warning data, but particularly the SAC commander, who would undoubtedly be eager to... launch his bomber force under fail-safe procedures... The SAC commander cannot execute his force for strikes and cannot authorize nuclear releases, but he can launch the force for survival in the face of imminent attack.

Upon close reading, General Dougherty seems to confirm rather than deny launch on warning subdelegation, for he went on to explain *by contrast* how the *first-strike* option would be taken only in response to a presidential order. General Dougherty reasoned that "national cohesion may depend critically upon keeping the fact of such debate [whether to strike first] from the public and from those in nuclear commands who must respond." It is fair to infer that inferior officers, and in particular launch control officers, would have no reliable way to determine whether an

²¹⁰ The phrase "dynamic reliability" recognizes the probable loss of sensor signals, presumptively under attack.

EAM was a first-strike or launch on warning order, or whether it was from the President or from superior officers acting on their own initiative.

It is no secret that submarine crews may autonomously launch their missiles if communications are cut,²¹¹ and the so-called "Looking Glass" permanently airborne command post can likewise launch Minuteman missiles, as once could Minuteman launch control officers in the event of Strategic Air Command being destroyed. The difference between *authentication* and *enabling* of missile launch, and the concept of *automatic devolution* of authority to execute launch, are again stressed:

In the officially-sponsored books, along with press accounts, and some movie scripts and novels as well, much is made of the set of codes for launching a nuclear war which are always kept near the President as he travels about. Yet it should be perfectly clear that these are not some sort of *enabling* code, without which military officers could not arm their nuclear warheads, but rather an *authenticating* code, demonstrating for the officers receiving the message in Omaha that it was indeed the President who transmitted it. *This then necessarily begs the question of whether some ways might be found to "authenticate" a message to launch nuclear war, for example reliable news that the President had been killed, and/or that nuclear warheads had fallen on Washington and other major American cities...* [A] code signal [EAM] must apparently also then move from SAC headquarters to the various missile silos and bomber bases to commit them to war. Again it must be clear that an enabling signal is not involved but merely an *authenticating* signal. We are assured that various backup signal-transmitted locations are provided in case the first one should be knocked out, including one constantly aloft. We are also assured that none of these could wrongfully dispatch a nuclear attack, but that each is *automatically* enabled to dispatch such an attack when the responsibility properly devolved upon it in the event of enemy efforts at preemption... In the unlikely [sic; at the time of writing missiles were thought insufficiently accurate to knock-out SAC] event that the key [SAC] command post should be destroyed by enemy action, the electronic capability to launch or prevent a launch of ICBMs would automatically switch to other key command posts. If these should also be destroyed by an enemy, the automatic system would immediately switch the capability to alternate control points.²¹²

²¹¹ That Congress is informed of nuclear submarine delegations may, and yet may not, authorize them. The navy's release procedures incorporate the only military case in which a subordinate is permitted, though not encouraged, to refuse to perform his captain's order. Neither of these mitigating circumstances hold re the present LOWC.

(?) Note that the operation of a LOWC involves the preliminary decision to enable the LOWC, and only secondly, in the event of an attack warning and if the LOWC is not predecided, there may come the retaliatory decision itself. The former decision as to which, if any, of a number of available LOWCs to operate, is presently a function of military alert, and may therefore be militarily - or virtually automatically - taken. Alerting, and the operation of a LOWC, are conceived of as the exercise of operational command, and are thus represented as legitimate day-to-day military matters. Indeed, as noted above, the authority Blair reports that launch on warning becomes the de facto military policy immediately nuclear alert levels rise. The delegation of this preliminary decision to operate a LOWC gives pause, even before the consequent predelegation of the retaliatory decision itself is considered.

The predelegation associated with Weinberger's LOWC particularly applies to the Chairman of the Joint Chiefs of Staff and CINCSAC. The circumstances triggering their authority to commit nuclear launch necessarily include the inaccessibility of the President in the event of attack warning. As a matter of practical probability, the President will not be available in the sudden-attack launch-on-warning time-frame. It would be simple to choose or create a moment of presidential inaccessibility, which is why a credible or effective LOWC *requires* predelegation. Without it, a LOWC would be both ineffective in an attack and incredible as a deterrent to attack. Reduced to bare bones, the formula for delegation *must* be:

for SC? Would if want to?

If the military conferees who are informed that the United States is under attack are unable to contact the President before the appropriate "Use Them Or Lose Them" decision time, then at that time they may assume the authority to make the retaliatory commitment.

Reduced further, the formula is that *the military is now permitted or permits itself to make the retaliatory launch commitment if the President cannot be contacted within a couple of minutes of a computer-generated attack warning.*

Whether this delegation is in writing is moot.²¹³ If the President were unavailable within

²¹² *First Use*, *supra*, at 214-215; quotes from article by Professor Quester.

²¹³ There are two schools of thought on this. The first, to which the author subscribes, supposes

* How hard would it be for JCS or SAC or NORAD or a cabal to simulate an attack? (An exercise type?)

a couple of minutes after a Threat Assessment Conference determined that a missile attack was underway, which must be deemed probable in that event.²¹⁴ then the military must *perforce* take the "Use Them Or Lose Them" decision. Otherwise, there would be no credible LOWC, for it obviously would not be difficult to choose or create a moment of Presidential incapacity. The expected attack scenario itself dictates the essential characteristics of the delegation, and the military necessity for predecision.

An analysis which deduces the necessity of predelegation for an effective LOWC is presented by the authority Bracken in *Managing Nuclear Operations*, *supra*, at 358-63:

well? — Distinction between predelegated authority to launch nuclear weapons and devolution of authority to do so may well be academic. A devolution of launch authority that short-circuited the Succession Act or the Constitution would entail a predelegation of authority itself, in this case one relying on a specific arrangement in the event of an emergency. The President does have the authority to delegate any of his responsibilities... It is reasonable to expect that the military will try to guarantee that either [immediate or predelegated] retaliation will occur if a Soviet first-strike is directed at the United States... Fouling up the decision to delegate could trigger enormous destruction, perhaps even the end of the country... one of the greatest dangers is that these sensitive questions will be answered exclusively in provincial terms... Once nuclear launch authority is given, no matter how careful the bounds that are placed on it, there is a possibility that the military commander

that well-defined contingency delegations exist, originally in the JSCP and derivatively in the SIOP. This has been intimated by Weinberger's agents on several occasions. With respect to delegation of nuclear release authority to the Joint Chiefs of Staff, Admiral Miller testified "Procedures are in existence, as I have indicated, to expedite the release process in view of certain contingencies." (*First Use*, *supra*, at 93.) Donald Latham likewise recently stated "Well, there are contingency plans, I just can't discuss them." The other school of thought recognizes that informal and ambiguous understandings could have the same effect, for example Desmond Ball notes "It may be a question that is just deliberately left open." (*The Button*, *supra*, at 141-2.) The *Washington Post* tactfully calls nuclear subdelegations a set of "agreements." (See quotation at p.114 above.)

²¹⁴ It is pertinent to note here that no attempt to contact the President is even begun until a Threat Assessment Conference *concludes*, and the decision time begins. (See, e.g., *False Alerts*, *supra*.) This means that the purported *decision* time either includes the time it takes to contact the President, which reduces to nothing the effective decision time, or the President is *de facto* a non-participant. Since communication lines are, in theory, continuously open to the White House *military* office, the only reasonable construction of "presidential" decision is the participation of the President's close military advisors. A comical indication of the non-participation of the President was provided by the reported (by Ellsberg) take-off of President Carter's plane on the occasion of the November 19, 1979, false alert, without even his knowledge, let alone his blessing or his person.

NC

in question will exceed that authority.

No citation of Regis
Ref. Service
? No authority is cited for the disputed proposition that unlimited delegation is allowed. Strategic expert Walter Slocombe expresses a typical uncertainty on the point:

(?) [I]t would be imprudent for the United States to retaliate solely on the basis of tactical warning. The maximum available time is simply too short, and it can be effectively shortened to zero, at least so far as a President in the White House is concerned, by cruise and ballistic missile attacks from close-in submarines or even by bombs clandestinely brought into Washington... In theory, orders need not come from the president or vice president. As commander in chief the president may legally delegate his authority to use nuclear weapons either to a potential successor or to a subordinate such as the secretary of defense or a military commander... Delegation down the military chain of command may be more effective than the presidential succession approach, but it is widely regarded as highly undesirable, even improper, for political and constitutional reasons and because of the danger of usurpation of the delegated power... In an all-out attack, all that is necessary is that the president - or successor or delegate - confirm that an attack has occurred and decide to respond or not. This awesome decision does not particularly lend itself to analysis and could be delegated. Contingently, a military subordinate could be told in advance what to do. (*Managing Nuclear Operations, supra*, p.134.)

g mil?
pres?

? Whatever commanders and experts may think, the Constitution and the Atomic Energy Act prohibit the subdelegation of nuclear release authority to the military. This prohibition is not a naive public perception or myth. It is the law, and it wise.

No - unless Pres is also prohibited -
and - what is alternative?